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THE SYSTEM OF TARGET SELECTION APPLIED BY THE  
GERMAN AIR FORCE IN WORLD WAR II

by

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THE SYSTEM OF TARGET SELECTION APPLIED BY THE  
GERMAN AIR FORCE IN WORLD WAR II

CHAPTER ONE

GERMAN AIR FORCE PRINCIPLES GOVERNING  
THE SELECTION OF TARGETS



## CHAPTER ONE

GERMAN AIR FORCE PRINCIPLES GOVERNING  
THE SELECTION OF TARGETS

## I. THE MISSIONS AS THE RULING FACTOR

Since the selection of targets was governed by the missions of the German Air Force, the first question presenting itself to the mind is: What were those missions?

1

According to General Carl von Clausewitz

War is thus an act of force to compel the opponent to do as we will

From this it follows that this force

- a. Must be applied by some one, and
- b. Must be applied against someone or something.

The application of force was the mission of the military forces as the exponents of force.

In a civilized country the sole mission of the military forces is to apply force in the event of war. However, the application of force was not a purpose in itself, but had to serve some definite purpose, the achievement of some goal.

2

On this subject German Air Field Manual # 16 in Paragraph

1. General Carl von Clausewitz: "Vom Kriege"; published after his death. 15th Supplemented Edition by Karl Linnebach; Keilverlag, Berlin SW 68, 1937; Chapter 1, Paragraph 2.
2. Luftwaffendienstvorschrift 16, Luftkriegsfuehrung; Revised Edition March 1940, Berlin 1940, Printed by Ernst Siegfried Mittler und Sohn. The Manual will be referred to in this study as Air Field Manual L. Dv. 16.

9 states as follows:

The mission of the military forces in war is to break the enemy will.....

As a branch of the military forces, the German Air Force thus had the mission of participation in action to ".....break the enemy will....." and to apply force to gain this end.

Paragraph 9 of Air Manual L. Dv. 16 also states against whom and for what purpose such force was to be applied, namely

The will of the Nation is most forcibly incorporated in its military forces.

Defeat of the enemy military forces is therefore the primary objective in war.

Concerning the specific mission of air power within this overall military mission, Paragraph 10 of the manual states:

The mission of the Air Force is to serve this purpose through the conduct of air warfare within the pattern of the overall conduct of the war.

Through combat action against the hostile air forces it will weaken the military power of the enemy and at the same time protect its own military forces, its own Nation and Country by participation in operations on land and at sea and will render direct support



to the Army and the Navy.

Through combat action against the enemy sources of power of the hostile military forces, and through action to prevent the flow of power from those sources to the enemy front, the Air Force will endeavor to bring about the collapse of the enemy military forces.

The methods by which combat operations were to be conducted against the enemy sources of power were established in Paragraph 143 of the manual, as follows:

Combat action against the sources of enemy power will be directed against all installations and measures of the enemy serving to strengthen and increase the enemy military forces in the field. Such installations include primarily

**Manufacturing industries**

Food supplies and food supply sources

Import activities, facilities, and installations

Electricity supplies

Rail and road routes

Military replacement centers

Centers of government and administration.

Air Field Manual L. Dv.16 rejected the idea of attacks against the civilian population (terrorization or intimidation action) ".....to break the enemy will....." insofar as the civilians concerned were not actively participating in the enemy war effort (as in the case of labor employed in arms

3 and ammunition factories). The manual provided for such attacks exclusively as retaliatory action in the event of an enemy resorting to military action of this type. On this subject the manual states in Paragraph 186:

The idea of attacks against towns and cities for the purpose of terrorizing the population is to be rejected on principle.

However, if terrorization attacks are nonetheless carried out by an enemy against undefended and unprotected open cities, retaliatory attacks might be the only means by which to cause an enemy to desist from this brutal type of air warfare.....

## II. LIMITING FACTORS IN THE SELECTION OF TARGETS.

1. Necessity to Adhere to the Overall War Effort of the Military Forces as a Whole. This natural requirement that air warfare must be an integral part of the overall conduct of a war, and this requirement was expressed in the stipulation that the combat operations of the Air Force must have an influence on the operations of the whole of the military forces.

In point of numerical strength and equipment the German Air Force was not geared for independent air warfare of a type which could force a decision in war.

This fact found expression in the applicable German



5

4 regulations and also in the measures applied during the development of the Air Force.

Air Field Manual L. Dv. 16 in Paragraph 8 states on this subject:

Over and beyond this the Air Force, even if it should lack direct contact with the Army and the Navy, must at all times consider itself an integral part of the entire military forces and must realize the unity of combat action by all branches of the military forces.

This principle is expressed in even stronger terms in Paragraph 30 of the Manual:

5 A decision in war can only be brought about by the combined efforts of all three military branches. By coordinating the operations of the Army, the Navy, and the Air Force, and by shifting emphasis within the whole military establishment in consonance with the current situation, the supreme command directing the whole war effort will endeavor to achieve maximum results.

In Paragraph 143 the manual states:

Combat action against the sources of enemy power will be directed against all installations and measures of the enemy serving to strengthen and increase the enemy military forces in the field.

Consequently, those responsible for the selection of

5 targets for air attack from the outset had to disregard those targets which were such that action against them would not have an impact immediately or within a reasonable time on the combat operations of the overall military forces.

Only in the case of exceptional circumstances did Air Field Manual L. Dv. 16 provide that a decision in war could be brought about by air power alone. Paragraph 31 of the manual states on this subject:

Over and beyond this, air power might if fronts have frozen on the ground be the only means to prevent complete attrition of friendly forces on the ground and to force a decision.

The essential condition for success in such a case would be a complete shift of emphasis to air warfare at the expense of all other means of waging warfare.

Such a complete change in the conduct of warfare requires time. Precautionary preparations must be made.

Because of the restricting factors dealt with above, numerous objects had to be disregarded as targets for air attack, since action against them would only in a very indirect way  
6 and at a great loss of time have produced results influencing the overall military effort.

2. Limiting Factors of International Law. The only international agreement which was binding on Germany at the outbreak



6 of the war was the Hague Convention known as the Hague<sup>1</sup> Rules of Land Warfare, from which the following passages are quoted out of Article 25, as the only article which has any bearing on the selection of targets. Under the heading

C. Rules of Particular Importance for Air Warfare,

Article 25 reads as follows:

It is forbidden to attack or fire upon, with any means whatever, undefended towns, villages, dwellings, or buildings.

The footnote on page 1 of the appendix qualifies this as follows:

1. The words "with any means whatever" are designed to make this legal paragraph also binding for the dropping of bombs from aircraft.

The requirement of Article 25 is only in the Rules for Land Warfare. It does not apply to naval warfare and accordingly also not to operational air warfare [the term used here in the German text is "selbststaendigen Luftkrieg" literally translated "independent air warfare."]. According to the agreement regarding shelling by naval forces in times of war, the shelling of undefended settlements or buildings is prohibited in naval warfare, but the shelling of military targets within undefended settlements is permitted. This applies in the same sense to operational 1. Appendix Volume, Appendix 1.

6

1

air warfare.

These conditions of the Hague Rules of Land Warfare are worse than scanty, and this applies equally to the agreement concerning the shelling by naval forces during times of war.

1

In addition to the above, the rules of the second agreement concerning air traffic are valid in foreign countries.

7

The principle rules involved here are as follows:

Article 22:

Air bombing designed for the purpose of terrorizing the civilian population, destroying or damaging private property which is not of a military nature, or injuring noncombattants, is prohibited.

Article 23:

Air bombing for the purpose of enforcing the requisitioning of goods or the payment of monetary contributions is prohibited.

Article 24:

(1) Air bombing is permissible only when it is directed against a military target, meaning a target which is such that its total or partial destruction would represent an indisputable military advantage for the belligerent.

(2) Air bombing of this type is permissible only

if it is directed exclusively against the following  
1. Ibid: Paris Air Law Agreement, 13 Oct 19.



targets:

military forces, military works, military installations or depots; factories which are well-known and important centers and serve the purpose of manufacturing weapons, ammunition, and typical articles of military requirement; communication and transportation lines and routes which are used for military purposes.

(3) The bombardment of cities and towns, villages, dwellings, and buildings which are not located in the immediate vicinity of areas in which the ground forces are operating is prohibited. If the targets enumerated in Section 2, above, are so located that they cannot be bombed without involving an indiscriminate bombing of the civilian population, aircraft shall desist from bombing them.

of operations by the ground forces, the bombing  
(4) In the immediate vicinity of cities and towns, villages, dwellings, and buildings is permissible, provided reasonable causes exist to assume that the concentration of military forces at such points is large enough to justify the bombing in spite of the consideration of the hazards to which the civilian population thereby will be exposed.

(5) The belligerent power shall pay indemnity in money for any damage done to persons or property through acts by its representatives or by any of its military forces and

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constituting an infringement of these rules.

It must be pointed out here, however, that Germany had not joined this agreement, so that it was not legally binding on the German Air Force.

It is an established fact that the German Government and the German Supreme Command had not devoted appropriate attention and consideration to the problem of "Air Warfare and International Law" prior to World War II. Characteristic of this circumstance is the evidence given in the Nuremburg Trials by the former Commander in Chief of the German Air Force, Reich Marshal Goering, part of which will be found in Appendix 2, Appendix Volume to this study. In the second last paragraph there Reich Marshal Goering states his opinion summarily as follows:

In my personal opinion the convention known as the Hague Rules of Land Warfare is not an instrument which can be applied to modern warfare, because it gives no consideration whatever to the essential features of such warfare, namely, armed conflict in the air, economic warfare, and psychological (propaganda) warfare.

In order to at least close the existing gaps in the field of International Law, the German Air Force High Command, in collaboration with various State authorities and societies,



8 had provisional legal principles worked out to govern the conduct of air warfare. These principles were drawn up prior to the Polish campaign and were furnished to the various command headquarters and troops together with the "Directives for the Strategic Concentration and the Conduct of Operations" known as "Operational Study 1939" (Aufmarsch- und Kampfanweisung--Planstudie 1939--<sup>1</sup>) on 20 July 1939.

For the German Air Force these principles thus represented the authoritative basis for action at the beginning of the war and later.

9 The principles are strongly inclined towards the **Paris** Air Traffic Agreement, and also preclude numerous objects as targets for attack.

3. The Actual Targets--Strategic and Tactical Targets. By the nature of the missions of air power in war, as enumerated in Chapter One above, the following targets evolved for air attack.

A target, and thus an object against which force could be applied, naturally had to consist of live or still material.

However, such an object only became a target for attack if its nature was such that action against it could contribute towards accomplishment of the assigned missions of air power.

It is thus clearly obvious that a relationship of unconditional interdependence existed between the mission of an

9 air force on the one hand and its targets on the other hand.

For the accomplishment of the missions which could develop for the German Air Force, the following targets evolved:

Mission 1: Counterair Action.

Target Categories and Targets.

a. Airborne Targets

Enemy aircraft of all types

Enemy barrage balloons.

b. Targets on the Ground.

Enemy airfields with the following sub-targets:

Aircraft

Hangars

Repair shops

Supply depots of all types.

Air supply depots and dumps of all types.

Aircraft and aircraft engine factories and subsidiary works.

Air defense installations, such as antiaircraft artillery and antiaircraft rocket firing positions.

Signal communication installations.

Mission 2: Direct Support for Army Forces.

Target Categories and Targets.

a. Moving Targets.



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10

a. Moving Targets.

Infantry advancing in dispersed order

Vehicles of all types

Convoys and truck columns

Tanks.

b. Stationary Targets.

Entrenched troops and weapons (infantry, machinegun, howitzer, mortar, and artillery positions)

Fortification works of all types (bunkers, fortresses)

Signal communication installations (telephone, teletype, and radio centers)

Supply and ammunition depots and dumps for the troops on line

Command posts.

Mission Three: Action supporting the Navy.Target Categories and Targets.a. Moving Targets.

Naval ships of all types

Merchant ships, tankers.

b. Stationary Targets.

Naval bases and their installations (docks, ship-building yards, depots)

Loading and unloading ports.

14

11

Mission Four: Traffic Interdiction to Prevent the Movement of Troops, Equipment, and Supplies to the Front, and the Movement of Supplies to Installations and Areas of Military Importance.

Target Categories and Targets.

a. Railroads.

Rolling stock

Rail routes, including rail depots and man-made structures

Railway repair shops

Power stations and transformer stations servicing electric railroads

Water supply installations.

b. Waterways.

Ships of all types

Canals, including manmade structures

Ports, including shipbuilding and repair installations and storehouses

c. Road Routes.

Roads of all types, with particular emphasis on manmade structures and traffic bottlenecks.

Mission Five: Combat Action against Enemy Resources.

a. Partial Mission: Combat Action against Manufacturing Industries Supporting the Enemy War Effort.



12

(1) Installations and factories engaged in the initial production and processing of basic products, such as coal, iron, oil, non ferrous metals, to include

Mines and mining installations

Blast furnaces

Steel and rolling mills

Non-ferrous smelting works

Oil wells and oil refineries.

(2) Weapons and ammunition factories of all types.

(3) Chemical factories producing for the armament industry.

(4) Machinery and tool factories.

(5) Subsidiary parts factories producing such items as crank shafts or ball bearings.

b. Partial Mission: Combat Action against Electric and Other Power Supply Sources, to Include

(1) Electric power stations and their hydraulic dams, transformer stations, electric cable networks.

(2) Gas supply installations, to include gas producing works, gasometers, long-distance gas pipelines.

(3) Water supply installations, to include pumping stations, reservoirs, dams.

16

12

Mission Six: Action to Prevent Enemy Import Traffic.

Targets.

Shipping

Silos and warehouses.

Mission Seven: Disruption of Enemy Food Supplies.

Targets.

Large grain mills

Sugar factories

Cold storage and other warehouses

Canning and other food preserving factories.

Mission Eight: Action against Centers of Government  
and Administration.

Targets.

Government buildings

Post and telegraph offices

Radio broadcasting stations.

Mission Nine: Action against Military Recruiting,  
Training, and Replacement Centers.

Targets.

Barracks and cantonments

Military headquarters of all types

Buildings used in the military training and  
education program (schools)

Research and proving centers.



## CLASSIFICATION AS STRATEGIC OR TACTICAL TARGETS

In the German Air Force no steps were taken to classify targets as strategic or tactical. This may have been due to the following reasons:

It was not always possible to clearly define the difference between strategic and tactical missions. Thus traffic interdiction operations, including the interdiction of traffic routes, could at one and the same time serve strategic and tactical purposes.

Another factor was that the air forces were not organized separately in strategic and tactical units so far as command control was concerned. One and the same command controlled both single-engine bombers with only a small striking range and long-range multi-engine bombers. Each such command committed its forces against strategic targets or against tactical targets as the current situation required. Therefore, no necessity existed in the German Air Force to classify its units in strategic and tactical branches.

## CHAPTER TWO

## THE GERMAN SYSTEM FOR RECORDING PERMANENT TYPE TARGETS

## The Processing of Target Data

As early as in 1935 a Target Processing Section was established in the Operations Division of the Air Command Office (later Luftwaffe General Staff). In contrast, all data on targets for counterair action were processed in the Foreign Air Intelligence Division (Abteilung Fremde Luftmächte), a branch of the Luftwaffe Operations Staff and also controlled by the Air Command Office.

On 1 January 1938 the Target Processing Section was consolidated with the Foreign Air Intelligence Division, so that one agency was now responsible for the procurement and for the processing of target data.

The procurement of data (Organization, Intelligence Media), is covered in detail in Study # 171 "Intelligence Procurement in the German Air Force" (Nachrichtenbeschaffung in der deutschen Luftwaffe).

The basic line of thought was as follows:

All objects which might become targets for German air attack in the eventuality of war could be classified in two categories according to the time at which they would be in evidence, namely,



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1. Targets which would only appear after the outbreak of a war. Primarily, such targets were bound up with the activities of the enemy field forces, including their supply and replacement systems. Targets of this type could only be detected during war, and were in many cases only temporarily in evidence. The provisions made for their detection comprised the assignment of clearly defined intelligence procurement missions to all appropriate agencies directing intelligence media.

2. Permanent Targets, which existed during times of peace.

Targets in this category were usually of greater importance than those of Category 1.

Since the air forces immediately at the beginning of a war would have the mission of attacking stationary targets in enemy territories, much had to be done during peace to procure the necessary data on such targets, insofar as they were of a permanent nature.

Air Field Manual L. Dv. 16 states on this subject

In Paragraph 80:

Wartime intelligence operations will be based on the information procured during peace.

As a rule, the peacetime intelligence activities will provide the data serving as the basis for the initial operations of the air forces.

15

As the war proceeds this data will often do away with the necessity for the time-consuming operations of initial reconnaissance, and in many cases will make it possible to restrict activities to the procurement of supplementary information or to a reexamination of the data already available.

Peacetime intelligence activities will procure data which during war can only be obtained with extreme difficulties or not at all.

On the subject of the peacetime procurement of target data for combat action against the sources of enemy military power and against the flow of such power to the front, the manual states in Paragraph 144

Combat action against the sources of enemy military power and against the flow of such power to the front is primarily combat action against permanent installations. To a large extent these exist already during peace and are restricted to specific localities. The expansion of existing and the creation of new installations creates important missions for wartime intelligence operations. However, combat action against the sources of enemy military power initially will be directed on the basis of intelligence data procured during peace.



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## I. THE INDIVIDUAL TARGETS.

Rules were established as early as in 1935 for the procurement and processing of data on each individual target. The 1935 edition of Air Field Manual L. Dv. 16 deals with this subject in Paragraph 146 as follows:

On the basis of peacetime intelligence activities the necessary instructions will be established already during peace for combat and reconnaissance action against each individual target. These instructions will contain information on the importance of the target to the enemy, the key points of a target complex, the appropriate time for combat action against it; the most practicable<sup>method</sup> for~~for~~ of attack, the requirements in forces, ammunition, and time; the attack results required, and the probable active <sup>passive</sup> and/defense which will be encountered. The instructions will define the missions for reconnaissance to improve the data already available.

## TARGET DATA PROCESSING IN PRACTICE

A target folder was maintained for each individual target detected, and a special form, known as the Basic Target Sheet (Zielstammblatt) was used to record all important items<sup>1</sup> of information.

As a rule, the following maps were included in each  
1. Appendix 4.

16 target folder:

A map of the target area, Scale 1:250 000, for the target run, showing the position of the target and the most appropriate route of approach and departure. Further detail, entered on the map if available, included information on the enemy defenses, such as fighter and anti-aircraft artillery, and enemy airfields, which could constitute a hazard during the approach or departure; navigational aids, such as salient terrain features (easily identifiable wooded sections, large rail or road intersections, and so forth), all of which were marked by heavier print; and magnetic defelections due to the presence of ore deposits or other causes.

A map in the scale of 1:5 000 or up to 1:25 000 of the target itself and its most immediate vicinity, showing the configuration of the target and its surroundings, with special emphasis on the most sensitive points of the target and all available information concerning defenses at the target itself, such as battery and searchlight positions. If at all possible a planview or sketches of the target were included naming the individual installations it comprised.

The details required in Air Field Manual L. Dv. 16, Paragraph 146 (quoted above) were entered on the basic target



17 sheet.

Under the item "Importance of the Target for the Enemy" details were entered on the output of a factory, the carrying capacity of rail routes, and so forth.

The information under the item "Key Points of the Target" included such details as the most important parts of a factory, such as its electricity plant, its gas supply installations, and its water supply system, the destruction of which could result <sup>in</sup> a total cessation of manufacturing operations.

To establish the "Most Appropriate Time for Attack" it was important to know the working hours and the time at which shifts changed in the factory, in order to strike the workers in the attack.

18 In order to determine the most appropriate types of bombs and the best form of attack it was important to know whether parts of a factory or a whole factory were particularly vulnerable to the hazards of explosions or of fire.

In addition to information on the active defense which might be encountered, it was also important to give details on passive defense installations, such as air raid shelters and smoke screening facilities.

18      II. TARGET CATEGORIES AND CLASSIFICATION IN SEQUENCE OF IM-  
PORTANCE.

The immense number of targets involved necessitated their registration and evaluation. This, in turn, made it necessary to group them, by country, in target categories. These target categories also provided the basis for the overall evaluation of individual segments of the economy, and so forth, a subject which will be dealt with in the next section of this chapter.

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From available documents it has been possible to partially reconstruct the following target categories and their numbers:

Target Category

	10	Airfields, ground service installations
	12	Naval ports
	13	Barracks, schools, headquarters
	13 500	Command posts
	20	Air ordnance offices and air parks
19	21	Motor fuel depots
	22	Ammunition depots and dumps, power magazines
	23	Ordnance offices of the Army and Naval AAA parks
	24	Arsenals, construction and repair shops
	25	Materiel supply dumps of unknown types,



24a

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1. (Archive records L/Franzoesisch Afrika/F.A) Lw. Fuehr. Stab  
Ic Va-Stand 1 September 1943.

- balloon (barrage) depots with supplies for special type troops
- 40 Rail depots, loading ramps, rail workshops, locomotive sheds
- 41 Railroad bridges
- 42 Rail interdiction targets on open way
- 43 Road bridges
- 44 Interdiction points on open roads
- 45 Commercial ports
- 47 Telephone and teletype centers
- 49 Radio stations and radio broadcasting stations
- 50 Electric power stations, and their hydraulic power dams
- 51 Transformer stations in the electricity system
- 52 Gas works
- 53 Waterworks, pumping stations, reservoirs, dams
- 56 Silos, warehouses, large grain mills, sugar factories, canning and other food conserving factories, distilleries
- 63 Explosives factories
- 64 Chemical industries, factories processing wood pulp, paper, artificial silk, artificial textiles, parachutes
- 65 Mineral oil refineries and fuel depots
- 20 66 Smelting works for calcium carbide and ferro-alloys, factories producing acetylene,



- balloon material, rubber tires
- 70 Iron and iron ore works, blast furnaces, steel and refined steel works, steel roller mills
- 71 Non-ferrous metal industries, mines, smelting works, roller mills
- 73 Factories producing aircraft engines
- 74 Factories producing aircraft fuselages, propellers, steering equipment, and undercarriages
- 76 Explosives and ammunition factories
- 82 Machinery and tool factories.

### III. DETERMINING THE WEAK POINTS OF AN ENEMY COUNTRY.

1. Basic Considerations. The large numbers of targets in existence far exceeded the attack capabilities of the German Air Force with any prospects of success in the event of war, unless it was possible to determine the most important targets, destruction of which would have a decisive impact on the enemy.

It was found, for example, that a country like France had approximately 40 000 medium- and large-size factories, all of which could be used to a greater or lesser extent in manufacturing the items required in the conduct of war, and it must be borne in mind that this number included targets of only one single category, that of production. To serve

21 as a basis for comparison the following information is offered:

From the records of the sixth meeting of the Working Committee of the Reich Defense Council (Arbeitsausschuss des Reichsverteidigungsrates)<sup>1</sup> on 7 February 1934 it can be seen that in Germany copies of the mobilization orders and mobilization schedules had to be furnished to 240 000 industrial and other concerns considered as vitally important for military and other reasons.

Records of the tenth meeting of the committee on 26 March 1935 reveal that in addition to the above number, 60 000 factories and other concerns had to be registered for armament production purposes in Germany as serving exclusively in the production of armement requirements.<sup>1</sup>

Correspondingly high figures therefore had to be assumed in the case of each technologically highly developed country with which Germany might become involved in conflict.

Within the Operations Branch of the German Air Force High Command there existed a section which maintained a Roster of Air Defense Targets. The mission of this section was, in collaboration with the responsible military and civilian authorities, to determine all objects within Germany which might become targets for enemy air attacks, to register them, and to establish priorities for the defense.

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1. Karlsruhe Document Collection.



The food supply and distribution systems

Traffic and communication routes, lines, and facilities.

Here it was necessary to develop special methods in order to discover whether prospects existed for successful attacks, and which targets were to be selected.

The information thus gathered and compiled provided the basis for decisions to be taken by the command.

#### THE NECESSITY FOR CONTINUOUS RE-ASSESSMENTS OF THE RESULTS OBTAINED THROUGH ANALYSIS

Changes in policies and in the military and/or economical situation could bring about important modifications in the results previously arrived at.

The conclusion of political or military pacts could remove shortages known to have existed previously in a country.

New inventions or new measures, such as the production of artificial rubber, the conversion of coal to oil, or the movement of important branches of industries to underground shelters, could render the results of previous intelligence analyses valueless.

The course of military operations, and primarily such events as the occupation of large parts of a country, also could cause important changes.

#### 2. The System of Analysis.

24 concerned for the articles produced in the branch of industry during times of war.

(2) The possibilities open to that country to insure the availability of the required quantities.

The size of peacetime and wartime production.

The extent to which, and the time within which, the enemy would be able to convert other factories to this branch of industry.

Stockpiles held.

Possibilities for imports and their extent.

Possible bottlenecks in individual factories or in the industry as a whole due to dependence on subsidiary industries, on electricity or other supply sources, or on transportation facilities.

The percentage of the overall output coming from the individual localities listed as targets.

(3) Possibilities<sup>to</sup>/Bring About a Decisively Important Reduction in the Output of the Branch of Industry Concerned through Air Attacks against Some or All of the Factories.

Here, consideration had to be given to strength and time requirements. The principles established in the 1935 Edition of Air Field Manual L. Dv. 16, Paragraph 148, had to be taken into consideration:

"As a rule the size of the forces required for action



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against the sources of enemy military power will increase in proportion to the distance of those sources from own bases and in proportion to the size of the sources. Increasing distances decrease the bomb load which can be carried, the larger the size of the sources, the larger will be the amounts of ammunition required.

"To secure an economic use of forces it is therefore wise to desist from action against the whole complex of military power sources and to operate only against the currently most important elements.

"These elements are to be so selected that their destruction will bring about the collapse of the entire power source area."

(4) To what extent could the country concerned replace lost industrial output:

(a) Through the release of stockpiled supplies.

(b) Through conversion of other factories to produce the required items.

(c) Through imports from abroad by rail, by canal shipping, by sea, or by air transportation.

What possibilities existed to prevent such imports by air attacks against ports, ships, and rail routes, or by other means. Such other means could include the precautionary purchase of the supplies involved in foreign

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markets to prevent their purchase by the enemy country, or diplomatic and/or military pressure against the prospective supply country.

(5) Summary.

When and under what circumstances did action against the type of target under examination offer prospects of success? When could results be expected? When and in what form would such results influence combat operations by the armed forces?

In practice, however, a detailed examination such as that described above could remain restricted to those branches of industry which even a superficial examination showed to be critical.

b. Possibilities for Combat Action against Vitally Important Imports. Here it was important to find answers to the following questions:

(1) What would be the import requirements of the country involved in the event of war?

What categories of goods would imports of vital importance to the military effort include? (Raw materials, semi-finished products--particularly for armament purposes, mineral oils, food supplies).

Had the country involved stockpiled supplies?

For how long would these stockpiled supplies



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suffice to meet current needs?

(2) Did the possibility exist to reduce the supplies of the country involved in a decisive measure? The entire supply system or specific fields, such as oil supplies?

(a) By means of combat action against merchant shipping and the enemy navy protecting such shipping, such action to be taken possibly in cooperation with naval forces (submarines); by means of attacks against ship-building yards and docks?

(b) By means of combat action against the main transit ports in the form of operations to mine and close approach routes and to destroy vitally important installations and locks.

Mining operations.

(c) Destruction of unloaded supplies.

Destruction of supply depots.

Oil depots.

Refrigeration storage houses.

Grain silos.

d. Vulnerability of a Country's Traffic Routes to Air Attack.

(1) The basis for investigations here was provided by rail route maps, from which it was possible to determine the carrying capacities of individual routes per day (the

27 maximum number of trains of a given length which could travel the route daily). It was only possible to determine very roughly whether the carrying capacities of such rail routes would be adequate to meet the requirements of wartime traffic. The density of the rail network in relation to the size of the territory involved provided some indications.

The importance of rail routes usually only became apparent during war in relation to operations of the military forces (troop concentrations etc.).

An exception to this rule was the case of the movement of raw materials and semi-finished products to important industrial regions. In such cases it was possible in some circumstances to estimate the importance of a rail route already during peace.

Lists of important points for interdiction, such as bridges, narrows, water supply installations (in areas with scarce water supplies) served to complete the target data.

(2) Canals. Here again maps showing the course of a canal together with details on its navigability and the peacetime volume of traffic carried (which showed its capacity) provided the basis for target analysis.

The important point here was to determine which canals should be attacked and destroyed in order to disturb important processes within a country.



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It was also important to examine the shipping tonnage available to a country in order to determine whether destruction of that shipping or of elements thereof, such as tugs or tankers, could produce telling results.

Lists of important points for interdiction, (such as locks or dams the destruction of which would empty the canal, or ship lifting installations) showed the vulnerability of a canal to air attack.

(3) Roads. As a rule a road network was only considered in conjunction with military operations on the ground. Lists were compiled in peace showing manmade structures and other suitable interdiction targets.

The appropriate information was available in the Military Geographic Information volumes for the various countries concerned.

e. Combat Action against Electricity and Power Supply Installations. Power supply installations often represent a bottleneck because of the degree to which modern industry is dependent on power. The destruction of large electric power stations in countries which were not very highly developed frequently paralyzed entire industrial regions.

For this reason the identification of electric power stations, together with information on their capacities and the areas they supplied was an important measure in preparing

for air warfare.

#### LONG-DISTANCE HIGH-VOLTAGE CABLE LINES AS TARGETS

Electric power stations are frequently so located and their size is relatively so small that they are often difficult to attack successfully with bombs. Usually they are also well defended by antiaircraft batteries. For this reason Professor Dr. Steinmann, employed in the Reich Air Ministry as Director of Water, Gas, and Electricity Supplies for Air Force Installations suggested that attacks should not be directed at enemy electric power stations but at the highly vulnerable overland high-voltage cable systems instead. For this purpose he had developed what he called a cable bomb. When dropped this bomb placed a wire cable over the high-voltage cables causing them to burn through. The weight of the electric cables on either side of the parted cable then caused the collapse of a large number of poles in both directions, the replacement of which took a considerable time. On 1 March 1943 a special staff of 37 assistants under Professor Steinmann was established with the mission of examining all data on all Russian territories within the striking range of German aircraft with a view to determining points at which this type of attack could be carried out. All available maps and air photos of Russian territories were carefully examined to detect overland electric cable lines, and reconnaissance



29 aircraft turned in innumerable new air photos for the purpose. The outcome of all this work was the production of special maps showing the entire Russian high-voltage transmission network, the way it was interconnected, and the capabilities of the individual lines, together with the results which could be achieved through air attacks. This information was to serve as a basis for plans of attack.

#### GAS SUPPLIES

Since large segments of the armament industries depend of the supply of gas in their operations, weak points can often be found in this field.

#### f. Prospects of Success in Air Attacks Directed at Complete Industrial Regions Instead of at Separate Targets.

The fact that the individual targets falling under one category heading were often widely distributed throughout the enemy territories, or perhaps were located far inside the enemy interior, in many cases could result in failure to achieve the desired results in planned attacks, even though these attacks caused serious damage to the enemy. On this subject Air Field Manual L. Dv. 16 states in Paragraph 148:

As a rule the size of the forces required for action against the sources of enemy military power will increase in proportion to the distance of those sources from own bases and in proportion to the area involved.

Increasing distances decrease the bombload which can be carried, and the larger the size of the source areas, the larger will be the amounts of ammunition required.

To secure an economic use of available forces it is therefore wise to desist from action against the whole complex of military power sources and to operate only against the currently most important elements.

These elements are to be so selected that their destruction will result in the collapse of the entire military power source area.

Very frequently, however, action against only elements of a target category, as provided for in the above passages, will not produce successful results. Here, however, other opportunities present themselves for action which will seriously damage the enemy.

In examining the most important targets within Germany, the fact evolved that, similarly to conditions in other countries, large industries developed to form concentrated industrial regions at places where raw materials were to be found or where labor was plentiful, as was the case in major cities.

Examination of the problem of what results large-scale attacks against such regions would produce showed that these regions represented neuralgic nerve centers of the first magnitude.



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Even if no single one of the industrial installations located in such regions could be considered as a key industry, and even if only elements of the various branches of vital wartime industries were located in the regions, it was found that large-scale air attacks against a region of this type could have a harmful impact on the entire armament output of a country. This was true whether the impact was due to the direct results accruing from the destruction of industrial work or to indirect results accruing from the destruction of railroads, electric power plants and their overland electricity supply distribution lines, and overland power gas pipelines. Above all, the results could be that factories in other regions were deprived for a considerable<sup>time</sup>/<sub>of</sub> their supplies in subsidiary items.

The German Command therefore decided on the compilation of special staff studies on industrial regions in order to determine the vulnerability of a country. As an example, a map of London, as an industrial region of this type, with details on the most important branches of industry located in and around the city is included as an appendix to this study.<sup>1</sup> This map was prepared as a visual aid in training and therefore shows only some of the important installations involved.

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1. Appendix 5.

IV. THE RESULTS ARRIVED AT BY TARGET DATA ANALYSIS IN THE  
GERMAN AIR FORCE HIGH COMMAND

1. Poland. The following is an extract from Operational  
Study 1939 (Planstudie 1939), as revised on 1 March 1939,  
Volume II, pp. 2-6.<sup>1</sup>

I. MILITARY FORCES

1. Air Forces and Antiaircraft Artillery.

a. Combat Forces. The Polish air and antiaircraft  
artillery forces are considerably inferior to those of  
the German Air Force in numbers, quality, organization  
and command.<sup>2</sup>

b. Ground Service Organization. The Polish ground  
service organization has approximately twelve well devel-  
oped air bases, which during peacetime contain dispropor-  
tionately large units (up to a complete air regiment of  
120 aircraft).<sup>3</sup>

The other (75) airfields in most cases only meet  
the requirements of German provisional air fields. They  
are located in an almost regular pattern throughout the  
country.

Of these only the following are provisionally equip-  
ped for operations by bomber units:

Kattowitz

Lodz

Lublin (2 airfields)



41a

1. Appendix 6. The present tense is being used in quoting from the original source.
2. It should be noted here that the German Air Force (the Luftwaffe) controlled all German antiaircraft artillery forces, so that the term "Air Force" here includes those forces in addition to all air units.
3. Footnote in the original text: It is to be assumed that the Poznan, Thorn, Bromberg, and Graudenz airfields will be completely evacuated already during times of crisis.

42

32

Rahmel

Terespol-Malaszewica.

Bomb and aviation fuel depots are located almost exclusively at the air bases. Repair hangars are available only at regimental air bases. Even during peace all major repairs have to be carried out in the factories (usually at the R. W. D. factory in Warsaw).

In view of the difficult traffic conditions the supply installations are inadequate for the maintenance of sizable air forces.

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The most important point for personnel and materiel replacements is the Deblin central depot.

Operations by large Russian air forces from bases in Polish territories, which the closely meshed network of airfields would permit, ~~are~~ therefore presently not possible, also because of personnel (language difficulties) and technical (different aircraft types and equipment) difficulties. Such operations would require long preparations, which experience shows would hardly be likely to be carried out except after the outbreak of a conflict.

c. Probable Behavior of Polish Aggressive Air Forces.

Polish air power in the bulk will be committed in cooperation with the Army, and for this purpose will be



assigned in squadron and group size units under army commands.

It is to be assumed that a few attacks by small forces will be directed against the strategic assembly of the German Army and possibly, on a limited scale, against towns and installations of military importance in near front areas, particularly in Eastern Prussia and Silesia. It is not to be expected that these will have any important impact on the course of military operations.

The Polish air forces will endeavor to protect themselves against a German attack by displacing from their overcrowded bases to field type airfields.

d. Polish Air Defenses.

Fighters and antiaircraft fire must be expected over the front areas held by army ground forces.

It is furthermore to be assumed with certainty that Warsaw, Gdingen, and the industrial region of Upper Silesia will be protected, although not completely, by fighters and antiaircraft artillery.

For the targets distributed throughout the country, including those in the central industrial region and in the oil region, it is certain that adequate protection can not be provided. It is to be expected that weak defenses will be encountered in the Deblin-Radom-Lublin area.

Poland has made good progress in the field of passive air defense.

2. Army:

a. Strength, Weapons, Appraisal of Capabilities.

By the sixth day of mobilization the Polish Army can probably be brought up to a wartime strength of 45 divisions, 15 cavalry brigades, etc., with a total maximum man power strength of 800 000.

Weapons are modern, but there is a lack in heavy artillery and usable armored vehicles.

The average Polish soldier is well disciplined, trained to attack, easily very enthusiastic, but at the same subject to depression. On the whole officers in all ranks cannot be compared with German officer personnel.

b. Fortress and Other Fortifications. The following fortresses or fortifications have been developed against Germany:

1. In Upper Silesia in the form of modern bunker lines.

2. At the Narew River in the form of the obsolete fortified lines taken over from the Russians.

3. The former German fortresses of Thorn, Posen, Graudenz, and Kulm.

The other defense installations are still under de-



35

development. Their value is insignificant.

c. Polish Plans for Operations. The Poles seem to have relinquished their offensive intentions and appear to expect heavy German attacks, particularly from Eastern Prussia.

It is to be expected that the Poles will fight delaying actions in a withdrawal to the line extending along the Narew to Ostrolenka and through Soldau, Thorn, Bromberg, and Kalish to the fortifications of Upper Silesia and from there to Teschen, evacuating the Polish Corridor and establishing a bridgehead around Gdingen.

Present plans of operations are at present under revision.

## II. ECONOMY.

The Polish peacetime economy stands or falls with the possession of the industrial region of Upper Silesia.

The central industrial region around Sandomierz is still under development.

36

The old Polish industrial triangle of Kielce-Ostrowiec-Skarzysko-Kamienna is presently the most important center for armament production, so far as the finishing processes are concerned. This excludes heavy guns which still cannot be produced in Poland.

Power supplies represent a bottleneck. The electric power stations for the most part are only linked up to form local electricity supply networks. These networks are not interconnected.

Destruction of a few electric power stations can paralyze the industrial regions of Warsaw, the industrial areas around Kielce, and the central industrial region.

High capacity railroutes connect Poland only with Germany and the Soviet Union. The difference between rail gages (Poland and Germany have the same gage, Russian rail roads are wider) create difficulties for large transportation movements of long duration. The transit stations at the border with the USSR are highly vulnerable to air attack.

Within Poland the rail network is particularly wide-meshed in the eastern territories and within Congress Poland is oriented exclusively towards Warsaw. Under <sup>attack</sup> systematic/it is hardly likely to meet wartime requirement

The findings arrived at in the analysis of the communication networks of a country were stated in the publication "Air Geographical Descriptions" (Luftgeographische Beschreibungen). The following is an extract from Volume II, 1 July 1939, (which deals with Poland) of that publication:



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Only in those areas which were German territory up to 1918 (Posen, parts of Silesia, of western Prussia, and of Eastern Prussia) does the road network in Poland to some extent remind one of road conditions in the rest of Germany and in western Europe. The Pripet swamp area and the areas northwest of a line from Warsaw through Grodno <sup>are</sup> no to the border of Eastern Prussia/extremely difficult to traverse (Verkehrseindlich). The Pripet marshes are completely unsuitable for sizable operations and divide eastern Poland into two separate parts.

Sand roads were frequently encountered. Only 4 percent of all roads are hard-surfaced. In the autumn months road conditions are unfavorable in practically all parts. In September, however, the German motorized units will encounter no insurmountable difficulties.

In many parts densely wooded sectors make air observation and air action against marching columns impossible; in many parts, however, such columns are exposed without any protection to the bombs and the machinegun fire of bomber and ground-attack aircraft.

On rail and road routes the bridges, the large-scale destruction of which must be expected, represent critical bottlenecks. This will be the case particularly all along the Vistula River, farther south at the Dunajec and

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San Rivers, in the center at the Warthe and Pilica Rivers, and in the north at the Brahe and Drewenz Rivers (west, east, and south of Thorn).

The supply systems of the Army and the Air Force will be subjected to severe strains by reason of all these hindrances.

Compared with German conditions the rail network, with an overall length of 12 000 miles of rails, is also poorly developed. It will not be of much significance for German supply and replacement movements, and particularly not for the strategic movements of the Polish Army parallel with the anticipated front line or from east to west.

For these purposes the rail routes in Poland can be considered in the following systems:

System Area One: Bromberg-Posen-Kalish-Warsaw-Kutno-Mlava-Thorn.

System Area Two: Warsaw-Lodz-Kalish-Kattowitz-Krakau-Przemysl-Sandomierz-Lublin-Deblin-Warsaw.

System Area Three: Warsaw-Deblin-Lublin-Lvov-Rovno-Sarny-Lunienz-Baranovich-Lida-Vilna.

System Area Four: The "escape" routes leading from the Lvov-Vilna route to Russia, Latvia, and Lithuania; and the Route from Lvov to Rumania.

The Posen-Warsaw trunk line is important for the retrograde movements of the Posen Army and the Polish



Towards the end of November or the beginning of December 1938 the Commander in Chief of the Luftwaffe ordered that work was to start at a comprehensive study of Britain's air power and military economic capabilities. The study was conducted under the title "Studie Blau" by the 5th Branch of the General Staff in the months of January to June 1939.

Among others Goering appointed Milch, Udet, and Jeschonnek as permanent members of the study group.

The study was conducted under the chairmanship of the Chief, Intelligence Division, in the form of lectures, discussions, and interrogations held once to twice weekly and often lasting as long as between four and five hours.

Participants included all members of the England Section, Intelligence Division, all section chiefs of the division, technological personnel from the Military Economy Branch of the Chief of Special Supplies and Procurement, and specialized experts on the various specific fields involved.

The study included all areas of political and economic endeavor, military forces, structure of the British Empire, the Nation as such and the form of Government, Administration, the economic system, industry,

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trade imports and exports and supplies in peace and war, electricity supplies, sensitivity to air attack, shadow factories, mineral deposits, rail systems, canal systems, naval and civilian ports, stockpiles held against the eventuality of war, seaborne communications, etc., all of which subjects were submitted to a very careful scrutiny.

Ample information was available for the purpose, including publications and the records of debates in the House of Parliament in World War I. The study produced new ideas and a basis for the formulation of missions of intelligence procurement. In July 1939 the completed study was presented to the Commander in Chief of the Luftwaffe in the presence of the Chief of Staff, an Under Secretary of State, the Commanding General of the Second Air Fleet and his Chief of Staff. The study was presented with an oral address by the Chief of the Intelligence Division.

The findings were summarized as follows:

Great Britain has an extraordinarily firmly anchored form of Government, and is biologically and economically strong. Her military power is anchored primarily in the Navy which is far superior in strength to the German Navy. Mobilization of the Navy has already commenced. The second strongest branch of the military forces is the Air Force,



which presently is engaged in a program of modernization and rearmament and might reach a status equal to that of the German Air Force in 1940. The air defense of the British Isles is well prepared and is being improved continuously. Modernization of the small British Army is making good progress, but for the time being the Army can only play a role in cooperation <sup>with</sup> France.

Stockpiling of supplies for the economy has begun in all fields. The weakest points in the overall British economy are its dependence on imports from abroad and on sea routes. This gives special importance to the sensitivity of Britain as a whole, because of her geographical position, and of British naval and mercantile ports to air attack. The inescapable condition for air warfare against Britain is the neutralization of her Air Force and Navy. The only mission which would then remain would be to neutralize all of her naval and mercantile ports and destroy her shipping.

It is not possible to estimate how long it would take to achieve the objective aimed at.

Information was also available on the subject of the<sup>1</sup> economical situation of Britain. An analysis of the data available in this field presented the following picture:

1. Appendix 1: Extract from the Navy Memorandum on intensified Naval Warfare against Britain, 15 October 1939 (Denkschrift der Kriegsmarine ueber den verscheerften Seekrieg gegen England.

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# 1. BRITISH PEACETIME IMPORT REQUIREMENTS IN PERCENTAGE OF OVERALL CONSUMPTION

	Agricultural Products	Industrial Commodities	Mineral Oils
Percentage of over- all consumption im- ported	75	73*	96
Volumes imported in 1937	23 000 000 tons	35 200 000 tons	11 200 000 tons
Characteristic features	Large quantities of bulky animal feeds besides highly concentrat- ed foodstuffs	Large quantities of bulky raw ma- terials; few fi- nished product	Mainly re- fined mineral oils

\*Calculated on the basis of monetary values.

## Degree of British Dependence on Foreign Imports in Detail:

<u>Food.</u>	Percent
Fats, tea, coffee, cocoa, tropical and sub- tropical fruits, etc.	90-100
Bread grains	80-90
Sugar	70-80
Cheese, fruits	60-70
Meat	50-60

## Raw Materials.

Rubber, cotton, silk, jute, potash, bauxite, nickel, antimony, mercury, etc.	100
Copper, manganese, chromium	99-100
Iron oxides, wolfram	98-99
Flax, zinc	96-97
Timber, mineral oils	96
Tin, lead	92-93
Wool, hides, skins	71
Iron ores (in iron content)	42



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42

The only commodities in which Britain is completely self supporting are coal and nitrogen.

## II. BRITISH WARTIME IMPORT REQUIREMENTS.

The curtailment of civilian consumption, a changeover from the import of bulky to that of concentrated commodities, increased home production, and various organizational measures plus the use of stockpiled supplies could sharply reduce imports in dry commodities to a level far below that of the peacetime import requirements. In contrast, the import of mineral oils would increase sharply. Computations by the Institute for Business Research (Institut fuer Konjunkturforschung) under instructions by the Navy High Command reveal the following picture:

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	1937 Imports (in million tons)	Britain's Wartime Import Re- quirements (in million tons)	
		1st Year of War	2d Year of War
Agricultural products	23.9	19	16.2
Industrial commodities	35.2	24.8	18.9
Mineral oils	11.2	21.8	24.2
	70.3	65.6	59.3

By throttling her re-export and normal export activities, a measure Britain could introduce in an emergency as done in the World War [World War I] it is to be assumed that imports could be even further reduced to an extent depending on the degree of export curtailment.

Total Import Requirements

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		Total Import Requirements (in million tons)	
		1st Year of War	2d Year of War
If industrial exports			
are halved	60		53.7
If exports cease totally	56.5		50.2

It must therefore be assumed that Britain if necessary could effect considerable savings in her import tannage, which could in certain circumstances reduce the peacetime volume by up to 30 percent.

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### III. SHIPPING REQUIREMENTS

1. Dry Commodities. Excluding tankers, the tonnage of British ocean going ships totalled 12 800 000 gross register tons and was sufficient to carry all peacetime import requirements.

In wartime a number of factors must be taken into account which will reduce the carrying capabilities of shipping, such as

- a. Delays due to overcrowded ports
- b. Longer sea routes
- c. Longer time spent on voyages
- d. Increased accidents at sea due to convoy traffic and other causes.

On the other hand, certain factors will serve to bring



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the tonnage needed to meet peacetime requirements. Wartime mineral oil consumption will show a sharp increase requiring tanker space estimated at

2.6 million Gross Register tons in the first year of war

2.9 " " " " " " " second " " "

so that no appreciable reserve in British-owned tanker tonnage is available (however compare IV, 1, below).

#### IV. SHIP SPACE RESERVES.

1. Actual Tonnage Reserve. Out of neutral mercantile fleets Britain can count particularly on the tanker fleet of the USA with a tonnage of 2 800 000 plus the merchant fleets of the Scandinavian countries and Greece totalling 12 300 000 Gross Register tons, including Norwegian tankers with a tonnage of 2 100 000. It is hard to estimate what share of this reserve Britain will be able to secure in an emergency.

Shipping owned by British dominions and colonies will probably only be available to a small extent to support the Home Country, since this shipping, which totals 3 100 000 tons, will mostly be required for local and inter-Empire traffic.

2. Potential Reserves. It can be assumed that shipbuilding yards in Britain and the USA can construct ships with a total of 6 million Gross Register tons annually. However, this

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figure could probably not be achieved before the third year of war. It is probable that Britain alone can construct new ships totalling 1,500,000 tons in the first year of war and 2 000 000 annually from then on, with the limitation that such results could be influenced by air warfare.

#### V. DEPENDENCE ON NORTH SEA AND BALTIC SEA.

In 1937 the following percentages of British imports came from countries bordering the North and Baltic Seas:

##### Agricultural Products.

Bacon	70 percent
Butter	42 "
Eggs	70 "

##### Timber and Wood Products, Including Imports From Russia.

Timber	65 percent
Wood pulp	90 "
Paper and hardboard	55 "
<u>Iron Ore.</u>	22 "

#### VI. THE CONTINENT OF NORTH AMERICA AS A SOURCE OF SUPPLIES.

If the USA makes its material resources fully available, restricting its home consumption in cases where this is necessary, the continent of North America is in a position to supply more than 90 percent of Britain's wartime import requirements.



1. Agricultural Products. Except in the case of crop failures North America can supply all needs, since market conditions already reflect a marked tendency towards overproduction and in the case of animal feeds, reserve supplies already would permit a rapid increase in the animal population.

2. Timber and Wood Products. Requirements in this field can be met by Canada.

3. Iron and Steel. Since the American iron and steel industries were working at only approximately 60 percent of full capacity in August 1939, the United States would be able to supply all of Britain's needs in iron and steel if production capabilities are exploited to the full and if supplies to other countries are deferred whenever this might become necessary.

4. Non-Ferrous Metals. Britain's wartime requirements could be met in full in the case of copper, nickel, zinc, lead, and titanium.

5. Textiles. If a stop is put to the production of the finer types of cloth and threads, for which purpose Egyptian cotton would be required, Britain's cotton requirements

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in cotton can be supplied by the United States alone, particularly in view of the fact that supplies totalling 12 million bales or roughly enough to supply world consumption for six months are presently held in storage.

6. Oils. In view of the immense reserve resources and the possibilities to step up production rapidly, all of Britain's requirements could be supplied without any need to curtail consumption within the United States.

The Continent of North America cannot supply the following commodities:

Wool, flax, hemp, jute	approximately	800 000 tons
Manganese ore	"	300 000 "
Rubber	"	200 000 "
Potash	"	200 000 "
Zinc	"	100 000 "
Bauxite	"	<u>300 000 "</u>
approximate total		<u>1 900 000 tons</u>

Furthermore, North America has too small supplies of no supplies at all in mercury, chromium ores, antimony, and wolfram. So far as ship space is concerned, however, the quantities required in these metals are so small that they are unimportant. The same applies in the case of a few materials in the fields of stones and earths, hides



and leather, and chemistry, some of which items also can be supplied only in part from the United States.

The fact that North America can supply such a large percentage of Britain's needs will make it possible to concentrate shipping on routes in the North Atlantic, which will considerably facilitate Britain's mission of protecting her merchant shipping. Simultaneously, Britain's ship space requirements would be considerably reduced.

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3. Russia. Air power [in Russia] is considered primarily as auxiliary to the Army and the Navy. A lack of uniform control is noticeable in the highest levels of command. Initiative, in the form of willingness to make personal decisions, is hampered by cooperation with Military Councils and because of controls by the Party.

Russian air strength presently totals approximately 6 000 military types of aircraft, including seaplanes. The 5 000 front line aircraft included in this number are distributed as follows:

Europe:

1270 bomber and strategic reconnaissance planes, 800 of them Class I

1. The Karlsruhe Document Center holds the following report on this subject: "Die russische Luftwaffe;" Excerpts from "Gedanken zur Luftlage in Europa, Stand:Fruehjahr 1939." Quelle: D.R.d.L. und Ob.d.L., Chef des Generalstabes, # 700/39 g.K. (5. Abt.I), 2 May 1939. Only an abridgment is on file, the original is not available.

Europe

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Europe--Continued

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300 ground-attack aircraft , meeting minimum requirements for Class I

270 Army tactical reconnaissance planes, Class II

1400 fighter aircraft, 1200 of them Class I.

Far East

250 bomber and strategic reconnaissance aircraft, 100 of them Class I

100 ground-attack aircraft, as above

250 Army tactical reconnaissance planes, Class II

400 fighter aircraft, 200 of them Class I.

The Naval air arm comprised 700 seaplanes, Class II, stationed primarily in the Baltic areas.

The ground service organization maintains a large number of airfields, particularly in the western territories. However, these airfields are poorly constructed and are therefore only conditionally suitable for operations by bomber forces. The disadvantages of the Russian ground service are that the airfields are in areas where the subsoil is poor, dust conditions, and the fact that they are only conditionally usable during the thaw seasons and during snowfalls in winter. Hangar space is inadequate. Fuel supplies held and fuel storage space are inadequate.



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Signal communications are poor. The whole organization cannot compare with the German ground service organization.

"The numerous airfields in European Russia therefore can only be considered as of conditional value for the operations of air forces in warfare."

Even during peacetime the supply and traffic conditions are completely inadequate. It is to be expected that the striking capabilities of the Soviet-Russian air forces will soon sink considerably under war conditions.

The standards achieved in training are far below those of the German Air Force.

Paratrooper and air-carried infantry forces are available in large numbers. "This circumstance is due to the relatively sparse population of the eastern territories."

These forces are trained for integrated action with the

Army. "One obstacle to the commitment of air-carried infantry in Central Europe is the dense population there."

The capabilities of the antiaircraft artillery are considered small.

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Military Economy: Conditions are favorable and under normal circumstances the military economy can meet requirements.

The weak point here is transportation routes.

"In view of the large use which will be made of transportation facilities for purely military

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Any plans for use of Poland and the border States as bases for air operations would require lengthy preparations, since the ground organization presently in existence in these territories is inadequate.

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"In summarizing it must be emphasized that the present striking power of the Soviet-Union is small because of innerpolitical reasons plus traffic, manufacturing, and supply operation conditions. This does not mean that this condition of weakness will not be remedied with time. In any case the rate at which the striking power might increase will be "Asiatic," meaning that it will be organizationally imperfect."

The consolidated findings of individual studies on air situation interpretations was intended to provide a basis for decisions to be taken by the Command and for the training of the higher level headquarters staffs.

To what extent the higher levels of command and the Supreme Command made use of the results thus obtained in order to translate them into action depended on numerous other factors. These factors were often unforeseeable and were outside the field of influence of the agencies responsible for the procurement, processing, evaluation, and final consolidation of intelligence data. For example, the knowledge that a country was particularly sensitive in the field of



## V. THE PREPARATION OF PLANS OF ATTACK.

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aircraft engine manufacturing did not necessarily lead to

attacks against the factories involved if the highest level

of German command could assume that, in the event of war, it

could conquer the country concerned and make use of the fac-

ories itself.

The results obtained through the research processes de-  
scribed above could only serve to provide patterns of action

to be adopted from case to case in accordance with current

situations. Other installations of the ground service organization

air ordnance parks, aircraft parks, bulk fuel storage dumps

and depots, and ammunition installations.

For the next phase, the phase of air operations in sup-

port of the Army, zones were established in which enemy rail

routes were to be interdicted.<sup>1</sup>

The appropriate directives to the field commands of the

Air Force constituted a part of the "Assembly and Combat In-

structions," designated from 1939 as "Operational Orders" for

reasons of security.

## VI. THE COMPILEION OF DETAILED REPORT DATA FOR UNIT COMMISSIONS

AND FOR THE BATTAL; TRAINING TO ENABLE CREW MEMBERS TO

RECOGNIZE SPECIFIC TARGET TYPES AND THEIR SENSITIVE PARTS.

In the case of attacks against permanent-type targets

1. Compare the rail interdictio zones in the target map of  
Poland in appendix 5.

54 the intention existed to furnish each participating aircraft crew the target data prepared in accordance with the requirements stated in Chapter 2, Section I, above, for each target, so that a great amount of preliminary work was involved.

The target data sheets were printed during peace and in such large numbers that adequate supplies were available of the appropriate sheets at each tactical air port on the front involved, so that, as a precaution against the eventuality of war, an immediate attack against any one of these targets could be launched immediately. Any air unit landing at one of these bases would find the necessary data on the spot.

#### TRAINING TO ENABLE AIRCRAFT CREWS TO RECOGNIZE SPECIFIC TARGET TYPES AND THEIR SENSITIVE PARTS

Peacetime training aimed at enabling the crew members of bomber and reconnaissance units to recognize factories and other permanent installations by the constructional features characteristic of the type of product manufactured in them.

In the case of important factory complexes, crew members were instructed on how to identify points which were particularly sensitive to air attack.

One of the aids used in such instruction was a descriptive illustration of the manufacturing processes involved and the resultant characteristic structural features of a factory.



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The illustrations used at the time are not available at the time of writing, for which reason similar illustrations of a more modern type are offered in the Appendix Volume.<sup>1</sup>

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1. Appendixes 7-9.

## CHAPTER THREE

## THE ACTUAL SELECTION OF TARGETS

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The purpose in this chapter is to illustrate how targets for German air attack were actually selected in World War II.

As can be seen from what has been said in the preceding chapters of this study, the missions assigned to the German Air Force had to be established prior to any target selection.

The mission, or in other words the objective or result aimed at, and the selection of targets were inseparably interdependent. Consequently, it has been necessary to deal with both of these factors in the following narrative.

The examples offered later in this study, in Part Two, Chapters 1-3, represent only a selection from the innumerable events of the type concerned which occurred in five years of warfare on several fronts.

I. THE SUPREME MILITARY COMMAND AS THE DIRECTING CENTER.

Concerning the assignment of missions Air Field Manual 16 states in Paragraph 30 as follows:

The decision of a war can only be brought about by the coordinated action of all three branches of the military forces. By coordinating the operations of the Army, the Navy, and the Air Force, and by appropriate shifts



of emphasis within the whole military establishment in accordance with the current military situation, the Supreme Command directing the entire war endeavors to achieve the maximum overall result.

Paragraph 11:  
In ~~Chapter III~~

How the maximum results can be achieved towards bringing about a decision in war and, accordingly, which mission must be brought into prominence at any given time, can only be decided within the pattern of the overall military situation. The currently most important target must be determined with careful consideration of all military, political, and economic aspects involved.

In making the decision due regard must be given to the enemy, weather conditions, the season of the year, the structure of the country involved and the character of its population, and own combat capabilities, and the capabilities and limitations of the air forces available must be taken into consideration.

In Paragraph 13:

The whole pattern must be kept constantly in view.

From all of the above it becomes obvious that the missions, meaning the objectives to be achieved through operations of the

1. Note by author: Obviously the "objective aimed at" (Zielsetzung) is meant here. Instead, the term used in the original text is "Ziel" or target.

56 Air Force in practice could only be established by the Supreme Command of all military branches. This was particularly the case after the war had developed into a multi-front war.

#### COOPERATION WITH THE POLITICAL AUTHORITIES

Air Field Manual L. Dv. 16 states categorically in Paragraph 11 that consideration must be given to political aspects.

This flat statement is amplified in Paragraph 22 of the manual as follows:

Operations by the Air Force strike the enemy nation and its country in their most sensitive points. Unintended concurrent results cannot be avoided in the attacks. The results of the combat action can be of exceptionally serious import in the political field and in the field of international law. Attacks carried out at the wrong time can produce results diametrically opposed to those intended.

For these reasons the Supreme Command directing the whole war must retain the possibility to exercise a strong influence on the conduct of air warfare.

From the above it is obvious that not even the military command itself can make the decision concerning what the objective of air warfare is to be but must request a decision from the highest responsible political authority.



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However, this principle did not apply in the case of Germany, because Hitler was at one and the same time Head of the State and Supreme Commander of the military forces.

The weak point here was that Hitler was admittedly advised by his military assistants, but not by his political advisers, so that the political decisions taken were based on the deliberations of him alone.

It would exceed the scope of this study to examine how this resulted in wrong assessments of the political repercussions of military action.

## II. THE PRINCIPLES GOVERNING THE ESTABLISHMENT OF THE OBJECTIVE AND THE SELECTION OF TARGETS.

In defining the objective of air warfare it was essential, according to Air Field Manual L. Dv. 16, Paragraphs 13-15, to give consideration to the following points:

### Paragraph 13:

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The objective in air warfare must conform to the principle of power concentration. Within the scope of the applicability of air power innumerable missions will develop for the Air Force, for the accomplishment of which its available strengths usually will not be adequate.

For this reason care must be exercised to avoid any dispersion of effort through the simultaneous assignment of too many separate missions, or through an all too

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change of missions, which would inhibit the proper culmination of any action taken. Attention must always remain directed towards the overall objective. Tactical reverses must be accepted if they do not endanger achievement of the operational intentions. The possibility to achieve tactical successes must be disregarded if the necessary action to secure them would tie down forces without any profitable repercussion on the overall situation.

Paragraph 14:

In spite of the necessity for firm adherence to the overall objective, it would be a mistake to overemphasize the power concentration principle. This could result easily in failure to exploit important successes in other areas, or might enable the enemy to secure decisively important advantages in other areas.

Developments of this kind must be detected at an early stage and prevented by means of precautionary measures.

Paragraph 15:

In the course of a war it will therefore frequently not be possible to separate, in timing, the missions of counter-air action, action in support of the Army and/or Navy, and action against the various resources of the enemy.



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In the selection of targets, Paragraphs 45-47 of the manual had to be borne in mind, as follows:

Paragraph 45:

The presence of large numbers of targets for attack must not be allowed to lead to any dispersion of effort.

It is therefore wise to limit the number of targets selected.

Paragraph 46

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In spite of the principle of power concentration, it can at times be a wise practice to execute a number of missions concurrently.

If emphasis is shifted to a new target or target complex it might prove necessary to continue attacks against the former targets in order not to forfeit the advantage of success already achieved.

In some cases success achieved in the assigned area of attack can be expanded to strategic scope by extending combat action to include outside targets.

Paragraph 47:

The results desired will determine the nature of the action taken and the type or types of ammunition used.

In order to achieve annihilating results, forces must be held together. In many cases it will be necessary to repeat the attack.

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Harassing and neutralizing effects can be achieved with smaller forces more widely spaced, by repeat attacks, and by use of the appropriate ammunition, namely, time-fuze bombs.



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PART TWO

EXAMPLES OF MISSIONS ASSIGNED TO THE GERMAN AIR FORCE  
IN WORLD WAR II AND THE RESULTANT SELECTION OF  
TARGETS

*Pages 77, 78 not used*

## CHAPTER ONE

## THE BATTLE FOR AIR SUPERIORITY

1. The Mission as the Basis for the Selection of Targets.A. Basic Rules to be Observed when Defining a Mission.

Air Field Manual L. Dv. 16 contains the following passages on this subject:

In Paragraph 16:

The own military forces and country are constantly threatened by enemy air power. This threat can at no time be adequately countered alone by defense activities within the homeland.

This latent air threat to the homeland makes it imperative from the very beginning of a war to commit bomber forces in offensive combat action against the enemy air forces within enemy territories.

In Paragraph 17:

Combat action over enemy territory is directed not only at the mobile enemy forces and their bases. It is directed in equal measure against the supply and manufacturing industries and facilities supporting the enemy air forces and thus becomes warfare against the enemy resources.

In Paragraph 18:



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In Paragraph 18:

Combat action against the enemy air forces within enemy territory will not cease even if the goal is achieved during a war of temporarily reducing the air threat to a minimum. Even if temporary air superiority is achieved the possibility must be taken into account that the enemy might be able to regain freedom of action through the replacement of losses suffered or through the introduction of new technological devices, and that the more quiet and time they are allowed in the pursuit of such endeavors the more likely they are to succeed.

In Paragraph 19:

Even if the bomber forces are diverted to the execution of other missions, continued combat action against the enemy fighter forces in their bases might be necessary to protect the units engaged in the new missions.

In Paragraph 119:

Throughout a war the battle against the enemy air forces thus never ceases. The effort expended on such battle and the means employed for the purpose will vary in accordance with the urgency of other missions, the strength of the forces available, the threat to the homeland, and the extent of enemy air defenses.

In Paragraph 107:

Even if the forces available are not adequate for preplanned counter-air action of this type, in missions with limited objectives, action must nevertheless be taken to weaken the enemy bomber forces through the exploitation of favorable circumstances for occasional air attacks.

b. The Command authority Responsible for the Assignment of Missions. At the beginning of a war, a campaign, or a new phase in a campaign, the Supreme Commander of the Military Forces as a rule issued to the Air Force High Command the necessary directive defining the scope within which the Air Force was to wage the battle for air superiority, or, in other words stating whether the Air Force initially was to commit its entire power in this mission, or was to be required to execute concurrent missions, such as the mission of providing air support for the Army, with parts of its forces.

The Commander in Chief of the Air Force thereupon took the necessary measures to carry out his mission. He allocated the forces available among the air fleets and gave the air fleet headquarters the appropriate directives for the execution of the assigned mission or missions.

As a rule each higher level Air Force field commander as the war proceeded had the authority to institute counter-air action in the form of a concentrated attack by all forces



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available under his command, or in the form of smaller attacks by only elements of the forces available to him, in order to prevent any increase in the enemy air strength. However, if the forces under his command were fully engaged in the execution of the mission or missions assigned to him by higher headquarters, he was required to obtain approval from the higher headquarters for such counter-air action.

c. Examples Showing the Assignment of Missions in World War II.

(1) Assignment of Missions by the Supreme Military Command.

Example One: Extract from Hitler Directive # 6 for Conduct of the War in the Western Theater, Paragraph 4, 9 October 1939.<sup>1</sup>

"The Air Force will prevent Anglo-French air operations against the German Army.

"It will be of importance here to prevent the Anglo-French air forces establishing themselves.....in Belgium and Holland."

Example Two: Extract from Supreme Military Headquarters Orders Dated 11 January 1940.<sup>2</sup>

"Air Force attack against the enemy air forces. Assuming suitable weather conditions, the Air Force on 14

1. Karlsruhe Document Collection, G) a.  
2. Ibid .....

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January 1940 will commit all available units in attacks against the majority of enemy airfields in operation in northeastern and eastern France, with the primary objective of destroying the fighter and reconnaissance aircraft present at those airfields...."

Example Three: From Hitler Directive # 16, 16 Junly 1940.<sup>1</sup>  
(Against the eventuality of a German landing in England).

"The mission of the Air Force will be to prevent interference by the enemy air forces...."

Example Four: From Hitler Directive # 17, 1 August 1940,  
for the Conduct of Air and Naval Operations against Bri-<sup>2</sup>  
tain.

"Paragraph 1: Using all available forces, the German Air Force will neutralize British air power as speedily as possible. The attacks will be directed primarily against the enemy flying forces, their ground service organization, and the supply installations; furthermore, against the air armament industry, including factories manufacturing antiaircraft artillery weapons and equipment."

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Example Six: Extract from Supreme Military Headquarters<sup>3</sup>  
Supplement to Directive # 34, 12 August 1941. (Russian  
Campaign: Saaremaa (Oesel) Island).

"Paragraph 3. As soon as the situation permits, action must be taken to remove the enemy air and naval bases on

- |    |       |       |
|----|-------|-------|
| 1. | Ibid, | G) a. |
| 2. | "     | G) a. |
| 3. | "     | G b.  |



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the islands of H  uma   (Dagoe) and Saaremaa (Oesel) by means of a joint operation with army, naval, and air elements participating.

"The most urgent requirement here is to destroy the enemy airfields, from which it appears that the attacks against Berlin are being staged.

"The Army will be responsible for uniform preparations for the operation."

Example Seven: From Supreme Military Headquarters Order in Implementation of Hitler Directive # 20. Preparations for the Drive into the Balkans. 13 December 1940.<sup>1</sup>

"Paragraph 5. Directives for Fourth Air Fleet.

c. To eliminate the Greek-British air forces....

Example Eight: Hitler Directive # 38, 2 December 1941, to CINC, Southern Theater Command, Mediterranean.<sup>2</sup>

The missions assigned were:

"Through combat action to achieve air and naval supremacy in the area between southern Italy and northern Africa, in order to establish secure lines of communications to Libya and the Cyrenaica; for this purpose the neutralization of Malta is particularly important."

Example Nine: Hitler Directive # 39, 8 December 1941 (Russian Campaign).<sup>3</sup>

II. Excerpt from Air Force Annex. "Concurrently with

1. Ibid G b.  
3. Ibid G b.

2. Ibid G.b

counter-air action...."

<sup>1</sup>  
Example Ten: Hitler Directive # 41, 5 April 1942 (For  
Planned Offensive Directed at Stalingrad and the Caucasus).

"Concentrated air forces will initiate the offensive  
by attacking and destroying the enemy air forces and their  
ground service organization in the attack area."

<sup>2</sup>  
Example Eleven: Hitler Directive # 42, 29 May 1942. (In-  
structions for Operations against Unoccupied France and/  
or the Iberian Peninsula),

"The mission of the Air Force is, concurrently with  
action in direct support of army forces, to neutralize,  
in operations coordinated with the Italians, those elements  
of the French air forces which are in France.

(2) Directives from the Commander in Chief of  
the Air Force.

Example One: From Operational Study 1939 (Planstudie 1939)  
(Mobilization and Operational Orders for the Air Force. In-  
structions for Operations against the East--Poland), 1 May  
1939.<sup>3</sup>

#### Missions of the Air Force.

a. To exclude the possibility of effective inter-  
ference by the Polish ~~air forces~~ in the operations, and  
to prevent air attacks against German territories.

b. This paragraph contains instructions for action

1. Ibid G c.
2. Ibid G c.
3. Ibid (Quoted here in an abridged form).



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by forces held ready for the purpose, in direct and direct support of the Army.

Furthermore, orders required attacks against Russian mobilization centers and lasting interdiction of the rail routes to the front areas.

Paragraph 8: Direction of the Attack.

a. ....

b. The large bulk of all available forces will participate in the first attack, directed against the Polish air forces.

Example Two: From Operational Study 1939, Volume III, GINC, Air Force (Case Polish), for the Conduct of Operations in the Western Theater.

Conduct of Combat Operations.

a. While fighting delaying actions on the assumption that the bulk of German air power is committed in the east against Poland

aa. Exploiting to the utmost the capabilities of the units, night conditions, and periods of bad weather to take all reported enemy airfields under continuous attack, including attacks by small units.

bb. ....

cc. ....

1. Ibid (Quoted here in an abridged form).

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The primary mission remains that of combat action against the enemy air forces, including their supply and other vitally important installations.

The paramount requirements for the bomber forces is to attack and destroy and enemy air units they detect on the ground, this without regard for other current missions unless they have specific orders to the contrary.

Example Four: From Directive # 1 from CINC, Air Force, to Second and Third Air Fleets, 31 August 1939. (Operations in the west). This Directive was issued prior to the declaration of war by France and Britain.

"1. Hostilities against Poland will be initiated at 0445 on 1 September 1939 by the First and Second Air Fleets.

"2. What is most important in the west is to leave responsibility for the commencement of hostilities clearly to Britain and France....."

"3. If Britain and France commence hostile action against Germany.....

"4. Missions of Second and Third Air Fleets.

The initially most important mission of the Second Air Fleet is to protect the Ruhr Region; the ability of this region to continue work must be preserved with all means available....

"The Third Air Fleet after the opening of hostilities  
1. Ibid. (Quoted here in abridged form).



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by the enemy will as its first mission take action to prevent operations by French and British air forces within its command zone.

"Otherwise, the orders issued pursuant to the Operational Study (Planstudie) apply to the Second and Third Air Fleets."

Example 4a: From Directive # 2 to Second and Third Air Fleets, 3 September 1939. (In the west).

"1. The British Admiralty has issued orders, at 1117 on 3 September, to commence hostilities. France has declared herself in a state of war against Germany since 1000 on 3 September.

"2. The objective of the Supreme German Command for the time being remains the speedy and victorious conclusion of the operations against Poland.

"3. The principles for the conduct of the war stated in Directive # 1 of 31 August 1939 remain in force.

"4. ....

"Air Force.

"The initiation of attack action remains contingent upon the commencement of hostilities in the air by France. I reserve to myself the authority to order the initiation of hostile action.

"German measures must be avoided which might cause  
1. Ibid. (Quoted here in abridged form).

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the initiation of air warfare by the enemy...."

Example 5: From Directive # 4, CINC, Air Force, to Second and Third Air Fleets, 23 September 1939.<sup>1</sup>

"A 1. Since the operations in the east are drawing to a close.....

"B 2. Now as before it is important to leave responsibility for the commencement of offensive air operations clearly to Britain and France.....

" 3. Air attacks against French territory, the British homeland.....still remain prohibited.

"Whatever happens, the Fuehrer and Supreme Commander has reserved to himself the authority to approve such action."

Example Six: Instructions for the Conduct of Combat Operations, Supplementary to Directive # 5 by the CINC, Air Force, for Air Warfare in the West.<sup>2</sup>

Combat Action against Enemy Air Forces.

" Action against the enemy air forces for the time being will be restricted exclusively to attacks against the units detected in the Belgian area and at the airbases of the French and British specially marked in the Appendix, the neutralization of which would prevent combat action by enemy short-range units against the German advance.

1. 1. Ibid.

2. Ibid.



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"In this connection the near-front air bases reportedly containing large forces will also be attacked, if units are detected on them by reconnaissance planes or by our bomber forces committed against the enemy advance."

Example Seven: From Directive # 5, CINC, Air Force, 7 December 1939, for the Planned Offensive in the West.<sup>1</sup>

"X Air Corps (Major General--Generalleutnant@@Geissler responsible directly to me, will attack under my orders....

"With the opening of operations in the west and while these operations continue X Air Corps will attack with increasing intensity: (Seaborne targets and port installations).

"The ground installations of the British Air Force within Britain insofar as units are operating from them against the Continent....."

Example Eight: Directive # 5, CINC, Air Force, Concerning Preparations for the Campaign in the West.<sup>2</sup>

"Second Air Fleet.....will take action to prevent interference with the north flank of Army Group B by Franco-British and Belgian and, so far as the situation requires, Dutch air forces, and to prevent the establishment of Franco-British air forces in the Belgian-Dutch areas.

1. Ibid.

2. Ibid.

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"(Main emphasis on Army support)"

"Initially only elements will be committed against the enemy air forces in Belgium and later also against those in the Lille area....

"Combat action against the Dutch antiaircraft artillery and the Dutch air forces with their ground installations will be taken only within a scope absolutely essential for our own conduct of operations, on an increased scale only if they participate in the combat operations. If Franco-British or Belgian units are unmistakably identified on Dutch territory, however, they will be taken under attack immediately, whether they are based together with Dutch units or not.

"IV Air Corps. (Support for 7th Air Division Airborne Operation).

"If necessary, attack is also authorized for this purpose against Dutch antiaircraft and fighter forces in the approach route zone of the 7th Air Division between the Waal River and the Belgian border .....

"Third Air Fleet. (Army Support),.....and will attack the Franco-British air forces insofar as these could be employed effectively against our attack armies.

"V Air Corps, under Brigadier General (Generalmajor) von Greim, will attack the Franco-British air forces



69 insofar as these can be committed against our attack forces, primarily in the Cambrai-Amiens-Chateau Thierry-Chalon s. M.-Toul-Metz area.

## 2. The Selection of Targets.

### a. Principles to be Observed in the Selection of Targets.

On this subject Air Field Manual No. 16, in Section IV: "Operations--Counter-Air Combat Action," states as follows:

In Paragraph IO3.

".....

"Combat action will be directed primarily at the enemy bomber forces. Destruction of the mobile forces must be the primary objective. A surprise attack by own bomber forces might succeed in striking the enemy bomber forces while they are still in their peacetime bases. Even if the units have left their peacetime bases too soon, attacks against these bases can be expected to cause considerable damage which will hamper their operations.

In Paragraph IO4.

".....Destruction of elements of the ground service organization and of signal communication centers will hamper the enemy bomber forces in their freedom of action, will decrease their striking range, and will complicate

direction of their operations.

"Only an aggressive conduct of operations will strike the roots of the enemy power if the attacks are directed during the war against enemy supplies, personnel and materiel replacements, and the supporting industries."

In Paragraph IIB.

"Combat action will be taken against enemy air forces in sea areas in accordance with the same principles as those applicable for action against land-based forces.

"Mobile units and their floating bases (aircraft carriers), however, are generally considered targets for the units allocated to the Navy, whereas bomber units of the Air Force can take action against shore air bases and signal communication centers if these are within their striking range.

As a rule combat action against their supplies, replacements, and supporting industries will not require any special measures. Such action is inseparable from the corresponding phase of overall combat."

b. What Headquarters Selected the Targets? For the first attack at the beginning of a war or of a campaign it was a general rule for the Commander in Chief of the Air Force to select the targets and establish their sequence of priority.



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or to call for recommendations from the air fleets on the subject. In other cases the air fleet headquarters or the air command, air division headquarters, or air corps headquarters responsible for the conduct of operations decided the selection and priority sequence of targets within its zone of operations.

Air Field Manual L. Dv. 16 states on this subject as follows in Paragraph 107:

Even if the bomber forces are employed in other missions they will be allowed a great measure of freedom of action to take advantage of promising situations if they detect enemy bomber units on the ground or encounter them while airborne.

This meant that even the tactical commander of a <sup>bomber</sup> unit in flight had the authority to ~~change~~ his assigned mission over enemy territory in order to attack enemy air units detected on the ground if favorable opportunities presented themselves.

c. Examples of Target Selection in World War II.

Recommendation By Third Air Fleet to Commander in Chief, Air Force, Concerning First Targets of Attack Consonant with Directive # 5 at the Beginning of the French Campaign.

"26 October 1939

"Command Personnel Only--Top Secret--Officer Courier.

"Solution B

"(Implying delimitation of zones and special concentrations of power within a close attack area immediately on first attack).

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Boundary Between II and IV Air Corps:

Speyer (V Corps)-Bitsch (V Corps)-Pogny (V Corps)-Corbeil  
(V Corps)-Chartres (V Corps)-Laval (V Corps)-Vannes (V  
Corps).

Targets for First attack:

## II Air Corps:

3d Bomber Wing, Amiens base; this leaves two groups  
still available

2d " " Thionville Base, leaving only one  
group still available

53d " " Reims base and Mourmelon, leaving  
only one group available

## V Air Corps

76th Bomber Wing, Metz-Frescaty-Nancy-Essey base

55th " " St Dizier-Robinson base, leaving  
one group available

27th " " Remilly and Sezanne-La Perthe base,  
leaving one group available

51st " " Dijon-Longvic base, leaving one  
group available.

This would leave uncommitted in the first attack:

II Air Corps 4 bomber groups

V " " 3 " " (?)

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To be committed either immediately on the basis of  
reconnaissance of the previous day or later in the fore-  
noon following renewed reconnaissance, primarily against  
enemy aircraft on the ground.



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According to present intelligence the following would be suitable targets:

Tactical air ports at Laon, Prosnes-Le Patron, Chal-  
lerange, Chatel Chehery, Vitry le Francois, Auzainvil-  
liers.

Given favorable weather conditions, all units com-  
mitted in the forenoon could be dispatched in a second  
attack on the same day.

For Air Fleet Adler Headquarters

Chief of Staff

s/ von Pohl

Adler, Operations Division, Air Section, # 193/39,  
Top Secret, Commander Personnel only.

Exemplifying a large-scale German attack on 1 January  
1945 against Allied airfields in southern Holland and Belgium.

(Source: Schnellbildsendungen des Ic-Dienstes West # 26/45,  
27.1.45. Nur fuer den Dienstgebrauch!)

"Strong German air forces on 1 January 1945 attack-  
ed Allied airfields in southern Holland and Belgium.

".....

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"I. Results Achieved. Own air photos prove success.

Altogether 402 aircraft destroyed, ~~XXXXXXXXXXXXXXXXXXXX~~

~~XX~~

namely:

279 (239 single-, 21 twin-, 19 four-engine) on the  
ground at airfields as evidenced by air photos

123 (113 single-, 7 twin-, 2 four-engine), also on

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7 other airfields, according to visual observations.

"Enemy aircraft shot down in air combat:

65 confirmed

12 in all probability.

"This makes a total enemy loss of

479 aircraft destroyed

114 " damaged."

(For typical target effect photos the reader is referred to Appendix 10-17 in Appendix Volume).

#### COMBAT ACTION AGAINST AIRBORNE TARGETS

##### a. Principles to Be Observed in Defining the Mission.

From Paragraph 10, Air Field Manual L.Dv. 16:

"To the mission of combat action over enemy territory comes that of fighter action against enemy aircraft over friendly territory....."

##### From Paragraph 113:

"The less forcible the action taken currently in offensive combat against the enemy, the greater will be the importance attaching to defense action."

b. Target Selection. In a study "German Fighter Aircraft in 1939-45" (Die deutschen Jagdflugzeuge 1939-45)<sup>1</sup>

General Galland writes:

"The following decisively important mistake was made, primarily in tactics. From 1941 on the Command demanded  
1. Karlsruhe Document Collection, F IV 1 b.



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action resulting in the downing of enemy bombers, disregarding that consistent action to deplete the enemy bomber forces was only possible after successful contest with their escort fighters. In the real sense this meant the necessity to secure air superiority. Then the downing of bombers is a small matter."

### 3. Critical Review.

a. Mission Definition and Assignment. With very harmful results the German Command time and again failed to adhere to the principles stated in regulations on the conduct of operations to establish air superiority. During the Russian campaign, for example, nothing was done to continue systematic combat action against the Russian air forces during later operations.

Apart from the circumstance that the German Air Force at the beginning of the campaign did not succeed in destroying the Russian aircraft factories, which was due to the inadequate striking range of its bomber forces, this failure to take continued counter-air action resulted in a quick recovery of Russian air power.

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When in 1944 the airfields in England were crowded with Allied aircraft for preparatory action preceding the coming invasion,<sup>1</sup> the German Air Force according to Air Field Manual L. Dv. 16 should have attacked these airfields, particularly

I. Appendix 18.

76 those on which bomber aircraft were stationed. However, Hitler prohibited such action, his opinion being that for retaliatory reasons the German Nation would prefer to have houses<sup>1</sup> destroyed in London rather than destroyed aircraft.

b. Target Selection. During the war it became evident that, contrary to the principles stated in Air Field Manual L. Dv. 16 and requiring that enemy bombers should be the primary target of attack, the enemy fighter forces frequently had to be the primary target, in order to create conditions for daytime bomber operations. The reason for this may have been the serious sensitivity of German bomber aircraft to weapons fire and their own weak defensive fire power. Examples from practical experience in this matter were the German air operations against Britain in the first phase of the Air Battle for Britain, and operations to neutralize Malta in April-May 1942.

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1. Karlsruhe Document Collection.



## CHAPTER TWO

## DIRECT AND INDIRECT SUPPORT FOR THE ARMY AND NAVY

## I. AIR SUPPORT FOR THE ARMY.

1. The Mission as the Basis for the Selection of Targets.

a. Principles to be Observed in the Defining and Assigning of Missions. In air operations supporting the Army it is necessary to differentiate between

- (1) Close support for the army ground forces on the actual field of battle, and thus direct support, and
- (2) Indirect air support.

On the subject of direct air support Air Field Manual L. Dv. 16 states in Paragraph 20:

The commitment of air power in missions of direct support for the Army or Navy is advisable when operations of decisive importance for the overall conduct of the war are involved.

Even then counter-air action against the enemy air forces will not cease.

Besides action to interfere with the plans of the enemy army and naval forces, it is important to prevent similar action by the enemy air forces.

On the subject of indirect support for the Army, the manual states in Paragraph 21 as follows:

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In missions of close tactical support for the Army and/or Navy, the Air Force, and primarily its bomber units, will not find targets which are such that their striking power can be brought fully to bear and through the destruction of which they could most effectively support the Army or the Navy.

It is wiser to commit them in action against more distant targets, the destruction or temporary neutralization of which would have a decisively important impact on the combat operations of the Army and/or the Navy.

Even while employed primarily in support of the Army and the Navy, it might therefore be wise to also conduct warfare against the enemy resources.

The condition here is that the targets must be so selected that the action taken by air forces will affect the operations of the Army and Navy at the proper time.

b. Which Command Headquarters Stated the Mission? On this subject Air Field Manual L. Dv. 16 stated in Paragraph 125 as follows:

Beyond this, strong elements of the Air Force can also be committed to participate in battles of decisive importance on the ground. In such case the ~~Commander~~ <sup>Supreme Military</sup> ~~Commander~~ <sup>1</sup> ~~Commander~~ <sup>1</sup> ~~Commander~~ <sup>1</sup> will coordinate the requests of

the Army with the other missions of air power and will

1. OKM (equivalent of Navy High Command) is obviously an error in the German text.



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scope of the air support  
determine accordingly the ~~size of the air support~~ to be  
given to  
~~committed in support of~~ operations on the ground.

The commander directing operations on the ground  
will determine the purpose to be achieved by the air action  
taken, whereas the Commander in Chief of the Air Forces  
or one of his subordinate commands will direct the exe-  
cution of the air mission.

The close cooperation essential in such action can  
be established through liaison detachments or teams.

A departure is noticeable here from the usual procedure  
1  
in defining a mission, as follows:

The Supreme Command will only instruct the Air Force  
that certain elements of the Army are to be given support  
and, with due regard for any other air missions, will state  
the size of the forces to be committed in such support ac-  
tion.

The army headquarters receiving such air support will  
inform the Air Force what purpose is to be achieved by the  
air action requested.

The execution of the mission (frequency of strikes,  
and the size of the units in successive strikes) will then  
be the exclusive responsibility of the air command.

The intention here was to insure that the air units

1. Appendix 19.

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would remain under control by an Air Force command staff, which alone, by reason of experience, could direct the air action with the best chances of success and with due regard to all contributing factors, such as the condition of the units involved, the capabilities of the aircraft and weapons, weather conditions, and the current air situation.<sup>1</sup>

c. Examples of Mission Statement in World War II.

(1) Missions Assigned By the Supreme Military Command.

Example One.

From Hitler Directive # 6 for the Conduct of the War in the Western Theater, 9 October 1939.<sup>2</sup>

"The Air Force will prevent action by the Franco-British air forces against our army forces, and will support the advance of our army forces to the extent necessary. Here, it will be particularly important to....., and to prevent the landing of British troops in Belgium and Holland."

Example Two.

From Hitler Directive # 16, 17 July 1940, for the planned Invasion of Britain in 1940-41.<sup>3</sup>

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".....

"c. The air mission will be: (to prevent participation by enemy air forces), to neutralize coastal

1. Appendix 21. Also Appendix 21, which offers a good example of Army-Air Force cooperation taken from "Der Feldzug im Osten, 1941-45" by General Flocher; Karlsruhe Doc. Collection
2. Karlsruhe Document Collection, Ga.3. Ibid.



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fortifications which could take the landing areas under fire, to break the initial resistance by the ground forces, and to break up enemy reserves on the approach.

In the execution of these missions extremely close cooperation is essential between the participating air units and the amphibious groups of the Army.....<sup>v</sup>

Example Three.

From Order By Supreme Military Command Headquarters Supplementary to Hitler Directive # 20 for Advance into the Balkans, 1941.<sup>1</sup>

"Preparations for the Advance into the Balkans Paragraph 5 Instructions for the Fourth Air Fleet.

"b. The concentration of the VIII Air Corps in Rumania must be so arranged that air corps forces can support the Twelfth Army from 1 February 1941 on (advance into Bulgaria, occupation of Greece)."

Example Four.

From Order By Supreme Military Command Headquarters, February 1941, Concerning Operations in Mediterranean Theater in 1941.<sup>2</sup>

"1. In order to support the Italian defense operations in Libya pending the arrival of German Army ground forces, the Air Force under more detailed instructions

1. Ibid, G b.

2. Ibid G b.

from the Commander in Chief, Air Force, and besides action to neutralize the British air forces stationed on Malta, will employ its units in Southern Italy to

"a. ....

"b. to attack the enemy forces advancing westwards in the Cyrenaika.

"c. to break up concentrations of the enemy armored and motorized forces advancing in and beyond the western areas of the Cyrenaika, consolidating all available air units for the purpose and using the heaviest types of bombs."

Example Five.

From Hitler Directive # 21, 18 December 1940, Paragraph 8 of the Plan for Strategic Concentration for Operation Barbarossa.<sup>1</sup> (Invasion of Russia, Air Force Cooperation....)

"The mission of the Air Force is to prevent as far as possible participation by the Russian air forces, and to support the combat operations of our army forces in areas of main effort, namely, in the zone of Army Group Center, and in the main effort area on the flank of Army Group South. During major operations, the Air Force will concentrate all units ~~to~~<sup>2</sup> support the Army. Attacks

1. Ibid.

2. Inserted by translator, since the German version (will concentrate all forces of the Army) is obviously an error.



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81 against the enemy industry will be executed only after the operational objectives of the Army have been reached.

Cooperation will be as follows:

Army Group South to be supported by Fourth Air Fleet

Army Group Center " " " " Second " "

Army Group North " " " " First " "

Example Six.

From Hitler-Directive # 33 for Continuation of the War  
1..  
in the East, 19 July 1941. Drive at Kiev.

"Paragraph 3. It is of particular importance for the Air Force when units can be released in the center to support the attack in the southeast through the commitment of air and antiaircraft artillery forces in concentration, if necessary by moving in reinforcements or by means of appropriate regroupings."

Example Seven.

2.  
From Hitler Directive # 34, 30 July 1941.

"II. Air Forces.

"1. The Air Force will shift the emphasis in air attack operations to the northeastern frontage by transferring the bulk of VIII Air Corps units to the First Air Fleet. The reinforcements will be moved in early

1. Karlsruhe Document Collection @ b.  
2. Ibid.

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enough to permit their commitment at the opening of the attack by the forces of Army Group North (early on 6 August).

"a. Center. The mission of the Air Force elements remaining in the zone of Army Group Center will be to provide fighter defense in front of the Second and Ninth Armies and, possibly, to support local attacks.....

"The attacks against Moscow will continue.

"3. Southwest Frontage. Missions remain unchanged. No reduction of the Air Force elements committed in the zone of Army Group South is planned.

"4. Finland. The primary mission of the Fifth Air Fleet is to support the mountain corps. Concurrently, the attack by the III Finnish Corps will be given support in promising areas.

"Preparations will be made against the possible necessity to commit forces in support of the Karelian armies."

Example Eight.

From Order By Supreme Military Command Headquarters, Supplementary to Directive # 34 of 12 August 1941.<sup>1</sup>

"1. After describing the missions of the Army in the southeastern area, namely,

under "a" annihilation of large enemy elements

1. Karlsruhe Document Collection G b.



83 still west of the Dnepr River and establishment of a bridgehead across the river,

under "b" Occupation of the Crimean Peninsula,

under "c" Occupation of the Donets region and the industrial region of Karkhov, the order continues<sup>7</sup>

"From these Army missions a large number of missions develop for the Air Force, all of which cannot be executed simultaneously, but each of which must be accomplished at the appropriate time through a tight concentration of power. The areas of main effort thus developed must be given greater concentration of action through the additional commitment of dive-bomber groups, primarily during the battles between Kanev and Boguslav, and then in operations to establish a bridgehead across the Dnepr River."

"2. Central Area of the Eastern Front, Last item<sup>7</sup>.

"Prior to the commencement of this drive in the direction of Moscow the operations against Leningrad must be brought to a close, and the units transferred from the Second to the First Air Fleet must be returned to the Second Air Fleet."

"Northeastern Frontage. The attack presently in progress is designed to isolate Leningrad and establish contact with the Finnish forces.

"In the matter of air support it is important that such support whenever possible be brought to bear in the strongest possible concentration at one point at a time so far as the location of our airfields permit.

"As soon as the tactical situation permits, the air and naval bases of the enemy on the islands of Hulumaa (Dagoe) and Saaremaa (Oesel) must be removed by means of a joint operations with elements of the Army, the Navy, and the Air Force participating.

"The most urgent requirements here is destruction of the enemy airfields, from where the attacks against Berlin are obviously launched."

"The Army will be responsible for uniform preparations for this joint operation."

Example Nine.

From Hitler Directive # 35, 6 September 1941 (Eastern Theater); Last Paragraph, Item 2.

"The Air Force will support the attack in the center of the eastern front by two forces, one operating from the Roslavl area in a northeast drive, the other from the Ninth Army zone in a drive against Byeloy<sup>7</sup>, with the forces of the Second Air Fleet, to be reinforced in time primarily by transfers from northeast, placing main emphasis on the flank areas and committing the bulk of

1. Karlsruhe Document Collection.



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85 of available dive-bomber units [VIII Air Corps] to support the mobile units on both flanks of the attack."

"3. On the northeastern frontage, and in connection with the operations of the Finnish Corps attacking on the Karelian Isthmus, the enemy forces resisting in the Leningrad area (after our seizure of Shlisselburg) must be so enveloped that large elements of the mobile forces and of the First Air Fleet, in particular the VIII Air Corps, can be released by 15 September at the latest for transfer to the zone of Army Group Center.

86 Before this, however, attempts must be made to achieve a close investment of Leningrad at least in the east and, weather conditions permitting, to launch a large-scale air attack against Leningrad. The most important objective is to destroy the water works."

Example Ten.

From Hitler Directive # 36, 22 September 1941 (Norway).<sup>1</sup>

"3. Air Force.

"It is of decisive importance that the Fifth Air Fleet must remain in the northern area of Norway with strong forces and forces capable of winter operations.

These forces must be large enough to be able to

1. Karlsruhe Document Collection.

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provide strong air support in the intended continuation of the drive on Kandalaksha and operations to seize the western part of the Fisher Island, until the beginning of the season of bad weather. In the meanwhile it is necessary to take continuous combat action against enemy seaborne supply movements and supply dumps and depots.

"During the season of bad weather conditions this action will continue whenever possible and will be extended primarily to attacks against enemy forward movements of replacements and supplies and against enemy efforts to further develop their base."

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Example Eleven.

From Hitler Directive # 37, 10 October 1941 (Concerns Norway Exclusively).<sup>1</sup>

"6. So far as weather conditions permit, the mission of the Air Force will be, in the Finnish theater of operations:

"a. To patrol the outpost coastal areas of northern Norway and Finland for the purpose of protecting own shipping and attacking enemy shipping.

"b. To provide air defense, particularly for the nickel producing region of Petsamo, unloading ports, and naval bases.

1. Karlsruhe Document Collection G b.



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"c. To conduct reconnaissance over the future areas of operations and to take strong combat action against the enemy supply base at Murmansk and against movements to there by sea and rail.

"d. To make preparations for the commitment of larger forces to support future operations."

Example Twelve.

From Hitler Directive # 38, 2 December 1941, to CINC, Southern (Mediterranean) Theater of Operations, Concerning the Employment of Air Power.<sup>1</sup>

".....cooperations with the German and other Axis forces committed in Northern Africa."

Example Thirteen.

From Hitler Directive # 39, 8 December 1941 (Campaign in the East).<sup>2</sup>

"II. Air Force.

"1. The mission of the Air Force is.....

"Particular importance attaches to continuous interdiction of the enemy communications, which sustain the enemy forces and the enemy use of which constitutes a threat to our own front segments. Concurrently with counter-air combat action, every possible support will be given to army defense against attacks on the ground and in the air.

1. Karlsruhe Document Collection G b. 2. Ibid G c.

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Example Fourteen.

From Hitler Directive # 41, 5 April 1942, (Eastern Front).<sup>1</sup>

"III. Air Force: (Southeastward drive, Stalingrad, Caucasus).

"Concurrently with its mission of furnishing direct support for the ground forces, the Air Force has the mission of protecting our assembly in the zone of Army Group South by more closely meshed air defenses. This applies particularly to bridges across the Dnepr River."

Example Fifteen.

From Hitler Directive # 41, 5 April 1942<sup>2</sup> (Eastern Theater  
(Measures to Improve and Stabilize the Situation all along the Line in the entire Eastern Theater).

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"II. A. ....

"However, wherever attacks with limited objectives <sup>be</sup> ~~must~~/launched for this purpose in accordance with my instructions, steps will be taken to insure an overwhelmingly heavy commitment of all means of attack available to the Army and the Air Force, in order to secure quick and decisive results. Only in this way will it be possible, and particularly so prior to the opening of the spring offensive, to restore in our troops a feeling of unconditional invincibility, and on the other hand to hammer home to the enemy a realization of their

1. Karlsruhe Document Collection, G c

2. Ibid.



hopeless inferiority.

"B. The next requirements<sup>1</sup> in these areas are, on the Crimean Peninsula, to mop up the Kerch Peninsula and to bring about the fall of the Fortress of Sevastopol. The Air Force, and in the very near future also the Navy, have the mission of effectively interdicting enemy supply and replacement traffic in the Black Sea and in the Straits of Kerch in preparation for these operations."

Example Sixteen.

From Hitler Directive # 42, 29 May 1942.<sup>1</sup> Instructions for Operations in Unoccupied France and/or the Iberian Peninsula.

".....

"3. Concurrently with action directly supporting the operations of the ground forces, the mission of the Air Force will be to neutralize those elements of the French Air Force which are in France in coordinated action with the Italians.

".....

"....."

Example Seventeen.

From Hitler Directive # 43, 11 July 1942 (East).<sup>2</sup> (Continuation of Operations in the Crimea. Crossing of the Straits of Kerch and Advance along either Side of the foothills of the Caucasus).

1. Karlsruhe Document Collection G c.  
2. Ibid.

".....

"4. Missions of the Air Force.....

"In addition to direct air support for the landing forces, it is important during this operation to prevent the enemy naval forces interfering with the crossing movements."

Example Eighteen.

From Hitler Directive # 45, 23 July 1942 (East).

".....

"B. Air Force.

"The mission of the Air Force is to initially commit strong elements in support of the troops crossing the Don River, and after this to support the advance by the eastern main attack group and consolidate the bulk of all available forces to annihilate Army Group Timoshenko.

"Concurrently, air support will be given to the operations of Army Group B against Stalingrad and the western parts of Astrakhan. Particular importance attaches here to destruction of the city of Stalingrad at an early stage. In addition, air attacks will be directed occasionally against Astrakhan.....

"In the operations which then follow main emphasis in the conduct of air operations will shift to support



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for the forces advancing against the Black Sea ports, in which action it will be necessary, in addition to the mission of direct support for the ground forces, to co-operate with our naval forces to prevent interference by enemy naval forces."

Individual Examples from the Period shortly before the End of World War II. (By this time the Supreme German Command was issuing detail orders instead of general directives, a sure sign of the confused situation).

Example One.

"17 April 1945. Situation Conference at Hitler's Command Bunker."<sup>1</sup>

"Hitler orders air action against the Autobahn from southeast towards Cottbus, against which the Russians are advancing with strong forces."

Example Two.

"20 April 1945."

"Hitler demands from me a guarantee that the jet units stationed in Czechoslovakia will be committed in force against the Russians advancing on Luebben."<sup>2</sup>

Example Three.

"21 April 1945."

At 0200 telephone discussion with General Krebs,

1. Karlsruhe Document Collection. Source: Karl Koller, "Der letzte Monat," p. 13. General Koller was the last Chief of the Air Force General Staff.
2. Ibid, p. 16.

Chief of the Army General Staff: Situation and desired areas of emphasis in air operations on 21 April.

"First Area: Russians advancing from Luebben against Baruth, and enemy armored forces in Jueterbog.

"Second Area: Support for attack by German Fourth Panzer army northeast of Bautzen and south of Spremberg."<sup>1</sup>

Telephone Call by Hitler to General Koller.

"Hitler: 'Great consternation in city because of artillery fire. Said to be by a railway battery of heavy caliber guns. Russians said to have taken a railway bridge across the Oder River. Air Force will detect and attack the battery immediately.'<sup>2</sup>"

"Hitler demands report on number of aircraft committed in Kottbus-Berlin line. Then he desires commitment only in gap south of Kottbus..... He wants Rudel, who is to be committed with his ground-attack squadrons in the Kottbus gap....."

"General Krebs.....He informs me that Hitler now desires commitment of air units not only in the Kottbus gap, but that all targets should be attacked in precisely the same manner."<sup>3</sup>

<sup>1</sup>, <sup>2</sup>, <sup>3</sup>. Karl Koller, "Der Letzte Monat," pp. 19, 20, 23, 24. Karlsruhe Document Collection.



(2) Missions Assigned By the Air Force HighCommand.

Example One. From Order by the Air Force High Command for the Polish Campaign (Excerpt From Operational Study 1939 Planstudie 1939, Volume II, page 9)

"3. The Mission of the Air Force is

"a. (Attacks against Polish air forces).

"b. To provide air support for the Army forces, particularly those which will jump off first to the attack, through direct and indirect support action even before they cross the border.

"The important point here is for adequately strong forces held ready for the purpose to break all resistance which might slow down the rapid advance on the ground; main effort in the zone of Tenth Army.

(Attacks against Polish mobilization centers and effective interdiction of the approach rail routes).

"8. Execution of the Attack.

"The bulk of all forces available will be committed in the first attack, which will be directed at the Polish air forces.

"After this main emphasis in air operations will be shifted to support for the Army, in accordance with Item 3, above.

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1. Karlsruhe Document Collection.

93 "In any case adequately strong forces will be held available for direct participation in combat on the ground, particularly in the zone of the Tenth Army."

94 Example Two. From Directive # 5 by Commander in Chief, Air Force, 7 December 1939 (Plan for French Campaign).<sup>1</sup>

"3. The mission of the Air Force is, while continuing operations against British naval forces and their bases, to employ the bulk of its forces in tightly concentrated action supporting the Army in main pressure areas. Here, it will initially be of primary importance

"a. To support our attacking armies in breaching the border fortifications and the defenses at the various and numerous phase lines. Concurrently, all-out attacks will be launched to delay the forward movement of Anglo-French forces and rearward elements of the Belgian Army, and to prevent any landing of troops.

"b. ....

"The Second Air Fleet will give direct support to the attack by the Sixth Army (Grevenbroich), prevent the forward movement of enemy reinforcements to the areas at the front, and attack troops which might be disembarking at the coast of Belgium and Holland....

.....

"Early and effective action to delay the advance

1. Karlsruhe Document Collection.



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of Anglo-French forces into Belgium is of decisive importance. Under uniform control by Second Air Fleet Headquarters, the bulk of the bomber units of that air fleet will therefore at the beginning of the operations be committed in attacks against enemy forces concentrating and advancing towards the frontage of Army Group B...

"The IV Air Corps, under Lieutenant General (General der Flieger) Keller, on the first day of the attack will support an airborne operation by the 7th Air Division (more detailed instructions have already been given). The primary requirement here is direct escort protection and support during the approach and during the air drop against enemy action in the air and from the ground.....

"At the same time elements of the corps will be held readily available for combat action against enemy troop columns approaching the Brussels-Ghent line from the Lille area.

"The VIII Air Corps, under Brigadier General (Generalmajor) Freiherr von Richthofen, on the first day of attack will support with elements an airborne operation by the 7th Air Division (more detailed instructions have already been given), and otherwise will be instructed to give the strongest possible direct support to the Sixth Army. The primary mission of this corps will

95           be to decimate the Belgian Army west of the Meuse River. It is emphasized that attacks against settled areas are authorized if such settlements are unmistakably occupied by troops.

"The Third Air Fleet will give direct support to the attacking forces on the flanks of Army Groups B and A, and will take effective action to delay the forward movement of enemy forces from France.....

96           "The I Air Corps, under Lieutenant General (General der Flieger) Grauert will commit elements in continuous missions of close support for the Fourth Army (Euskirchen), and at an early stage will attack enemy forces moving forward from the Valenciennes-Fumay line towards the Meuse River.....

"The II Air Corps, under Brigadier General (General-major) Loerzer, will delay the forward movement of enemy forces from the French interior by means of attacks against those rail and <sup>road</sup> routes leading to and across the French border on which military traffic is detected, and will assign a composite bomber wing to provide direct support to the XIX Army Corps.

"The V Air Corps, under Brigadier General von Greim, will conduct counter-air operations....., and concurrently will commit elements to delay the movement of enemy



forces to and across the Franco-Belgian frontiers."

From Instructions for the Conduct of Operations, Supplementary to Directive # 5 from the Commander in Chief of the Air Force

/Prior to the Campaign in the West. Basic Problems of the Air Force Conduct of Operations.

"1. The main mission for all air corps in the first days of the attack is to provide the most effective support possible for the attack by the ground forces. The most important requirement in this mission is to attack the following categories of targets:

"a. Enemy troop concentrations of all types

Identified higher level enemy headquarters and signal communication lines and installations.

"In operations against the Belgian Army, air attacks against enemy troops concentrations is one of the decisive conditions for a quick break through, particularly by the German Sixth and Fourth Armies.

"In addition it is important to detect the time at which the Franco-Belgian forces concentrate at the northern French frontier (with Belgium) and their movement into the Belgian interior. Since these movements will probably not become evident before forenoon on A-Day, early reconnaissance activities are necessary in the morning hours, while adequate attack forces will be held readily available. Early detection of the enemy concentration

1. Karlsruhe Document Collection.

movements is decisively important for an early strike at the concentrated enemy troops in order to disrupt prearranged movements and make it difficult for the enemy command to achieve its targets set for the day. This purpose can also be achieved if it should be possible immediately at the beginning of the attack to neutralize detected enemy headquarters and their signal communications systems.

"b. Infantry and Truck Columns on the March.

Once the enemy forces have commenced their forward movement, they will be taken under continuous attack throughout the day. Attacks will also be directed at rearward elements. The attacks will be in the form of "armed air reconnaissance," and will follow successively in quick sequences.

"If the 7th Air Division should be committed against G. or N.D., the attacks will be directed in concentration against those enemy forces which could be moved forward by the enemy against the paratrooper and airbarried infantry units, which are only lightly equipped for ground combat. It will be necessary to establish bombing limit zones in front of our lines in order to avoid endangering our own troops."

Individual Examples from the 1945 Period. By this time



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98 the process of general disintegration had progressed so far that the Air Force High Command was no longer issuing directives but detail orders. The examples given are from the War Journal of the Air Force High Command.<sup>1</sup>

1. 1 February 1945.

"In view of the seriously critical situation east of the Oder River, the Home Air Fleet has instructions to commit from Air District Command III all available tactical, replacement, and experimental units, plus all units presently in process of reequipping and all operable units from schools against the enemy forces which, in a surprise drive, have broken through the Oder River defense line. For the time being the commitment of the 300th and 301st Fighter Wings and the night fighter units of the 1st Fighter Division against the western opponents is of lesser importance."

2. 2 February 1945.

"Home Air Fleet instructed to act in close agreement with Sixth Air Fleet in committing its units against targets on the ground in the east. For this purpose the 1st Fighter Division will immediately dispatch a suitable liaison officer to the Sixth Air Fleet. Tactical units of the Home Air Fleet will be employed exclusively against enemy bridgeheads at the Oder River and/or

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1. Karlsruhe Document Collection.

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enemy concentrations east of the River."

3. 3 February 1945.

"Effective immediately, the II Air Corps, which has meanwhile arrived in Biesenthal, near Bernau, is assigned in all respects under the Sixth Air Fleet. This ~~corps~~ will assume command over the flying units in the zone of Army Group Weichsel (Vistula).

.....

"During today's heavy attack against Berlin the Reich Marshal asked the Chief, Operations Staff, why no fighters were committed in defense of the city. Because of the critical situation at the Oder River, the Air Force High Command had ordered the commitment of all fighter units, including those under the Home Air Fleet, at the eastern front. There they were attacking with bombs. At the time when the attacks against Berlin commenced the 301st Fighter Wing had already ~~dispatched~~ its units on their first mission at the Oder, and the units of the 300th Fighter Wing were ready to take off, with a bombload already on board, on a mission. The 3d Group, 7th Fighter Wing (Me-262 jet fighter aircraft) was not yet fully operable with all elements. The Chief, Air Force Operations Staff, suggested to the Reich Marshal that immediately after the Oder bridgehead



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situation was satisfactorily settled, the fighter units previously committed in home defense plus other fighter wings dispatched to reinforce the Sixth Air Fleet should be transferred back to home defense. The Reich Marshal approves this recommendation. The Chief, Operations Staff discussed the matter by telephone with Colonel von Below, Hitler's adjutant."

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4. "6 February 1945.

"Consonant with the changed zone boundary line between the army groups, a new zone boundary line for bombing and reconnaissance operations between the Fourth and Sixth Air Fleets is ordered with effect from midnight 0000 hours, 7 February.

Pursuant to orders from the Reich Marshal the 1st Fighter Division, with its units, will remain tactically assigned under the Sixth Air Fleet to support the ground forces at the eastern front. Elements not needed or not suitable for such operations will be released by the Sixth Air Fleet to the Home Air Fleet for commitment in home defense."

5. "7 February 1945.

"Operational order for Sixth Air Fleet submitted

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in draft form to the Reich Marshal for signature."

6. "8 February 1945.

"Because of large scale enemy attacks staged from from the Steinau area, the Sixth Air Fleet has requested approval to transfer Rudel's wing to the Kottbus area. The Chief, Operations Staff, rejects request because frequent displacements reduce operable strength of units and because the units cannot be employed to the maximum during the displacement movement."

7. "10 February 1945.

"The Chief of the Army General Staff has addressed a letter of appreciation to the Chief of the Air Force General Staff for the good performances of the air reconnaissance units committed in the east."

101

8. "11 February 1945.

"The Sixth Air Fleet has authorization to use spherical drift mines for action against enemy bridges across the Oder River, particularly ponton bridges.

"The Sixth Air Fleet has requested approval to withdraw from action all school and replacement squadrons and elements, since their effectiveness is too small. The Chief, Operations Staff, rejects request for assignment of a regular He-111 group from the 53d Bomber Wing, but will request a decision from the Reich Marshal.



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101 His reason for rejection is fuel shortage. In this connection the Chief of the Operations Staff gave orders that the ground-attack units of the Sixth Air Fleet are now also to use SD-2 bombs with time fuzes, particularly in attacks against the Oder River bridges; the stocks of these bombs held by the Home Air Fleet are to be delivered to the Sixth Air Fleet as speedily as possible."

9. "12 February 1945.

"Following oral report to the Reich Marshal, the Reich Marshal decided on the request of the Sixth Air Fleet as follows: The 3d Group, 53d Bomber Wing is to be reequipped by the Sixth (Supply) Branch with He-111 aircraft and assigned to the Sixth Air Fleet for commitment at the eastern front. The group cannot be assigned in its present condition, since it is equipped for operations with V-1 weapons. The Chief of Bomber Forces and the 6th Branch will take measures to expedite matters to render the group operable.

"The Chief of Supply and Administration draws attention to the fact that the current fuel supply situation makes it impossible for the Sixth Air Fleet to continue its extraordinarily heavy combat activities for much longer. In February deliveries of approximately

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101 400 tons of aviation fuel are expected from industry."

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10. "13 February 1945.

"The critical fuel supply situation makes it imperative to introduce stringent restrictions in all fields. In view of the serious developments in the situation on the ground in the east, however, fuel allocations to the Sixth Air Fleet will be given preference within the scope of the supplies available to the Air Force High Command. However, the Sixth Air Fleet will also have to adapt its operations to the serious fuel supply situations in order to be able to obtain decisive results with strong ~~forces~~ at decisively important points.

"Sixth Air Fleet is instructed, after receipt of SD bombs with time fuzes from Branch 4 of the Chief of Supply and Administration, to use these bombs in large numbers, particularly in night operations.

"Now that the Sixth Air Fleet has received fighter units and has also been returned its regular ground-attack and night fighter units, it no longer requires for combat action the units transferred to it by order dated 1 February from the Chiefs of Arms. These units, presently organized as tactical units, will therefore be deactivated and the elements will be returned to



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the appropriate Chiefs of Arms."

11. "17 February 1945.

"The Sixth Air Fleet is instructed to conduct air photo reconnaissance as speedily as possible over those rail routes which are particularly important for the movement of enemy supplies and replacements, namely, the Warsaw-Kutno, Warsaw-Litzmannstadt, Warsaw-Chenstochau-Deblin-Skarszysko, and Debica-Krakau routes, and to direct day and night attacks against any enemy supply and/or replacements movements on these routes, particularly in the zone of Army Group Weichsel."

12. "18 February 1945.

"Supplementary to the order given on 17 February, the Sixth Air Fleet, under instruction by that order to attack enemy supply and replacement movements, is given special instructions to attack the large rail transportation movements detected on the westward routes."

13. "21 February 1945.

"Sixth Air Fleet is instructed to commit a full strength daytime fighter group to protect the Fortress of Breslau.

"To avert the danger of weapons-fire attacks against own ground troops, Sixth Air Fleet is given detailed

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instructions those units which have no experience in operations in the east or in army support operations."

14. "23 February 1945.

"Since the Russians for some time past have been moving the bulk of their supplies in the eastern territories occupied by them by rail, the Fourth and Sixth Air Fleets, supplementary to the order dated 17 February to attack enemy supply movements, are given supplementary instructions to increase their attacks against railway trains and particularly against locomotives."

15. "24 February 1945.

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"Because of the changed situation the order dated 6 February placing the 1st Fighter Division under the ~~Sixth~~ Air Fleet is rescinded. The Home Air Fleet thus resumes responsibility for combat action against aircraft penetrating to far inside Germany from the east. The 300th and 301st Fighter Wings and ~~XX~~ the night fighter group from the 1st Fighter Division will from now on will only be committed in missions of support for the Army on express orders from the Air Force High Command."

16. "26 February 1945.

"In view of the expected continuation of the Soviet offensives directed at Berlin, the Sixth Air Fleet



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in response to its own recommendations is instructed to organize a Fighter Command East. This headquarters is intended for the direction of operations by fighter forces (daytime) in concentrated action at points of main effort in the general area of Berlin. The command is assigned in all respects under the Sixth Air Fleet."

17. "31 March 1945.

"Fourth Air Fleet is instructed to shift emphasis in operations. Emphasis now to be primarily in the zone of the Second Panzer Army, secondly in that of the Sixth Army.

"On its own recommendations of 27 March the Sixth Air Fleet receives authorization to commit its "assault" (Sturm) groups, particularly to attack locomotives."

18. "3 April 1945.

"Owing to the critical developments in the Vienna area the instructions given the Fourth Air Fleet on 31 March are rescinded, and the air fleet is instructed to place main emphasis on the Vienna area."

19. "8 April 1945.

"For use against individual tanks and armored spearhead units breaking through the German defenses, the Chief Training Officer is instructed to organize from his own resources five Bue-181 squadrons armed

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with Panzerfausts (antitank rockets used by infantrymen).

"In this connection the Chief of Ground-Attack Forces, and the Sixth and Fourth Air Fleets are instructed to take expedited action to resquip four ground-attack squadrons with FW-190 Antitank Blitz aircraft in order to further reinforce the ground-attack units committed in the east. This measure is ordered in view of the imminent Russian major offensive."

20. "9 April 1945.

"In view of heavy enemy air commitments against Koenigsberg, Hitler demands reinforcement of our own fighter and ground-attack forces in Eastern Prussia. Owing to the lack of space on airfields in these areas this will hardly be possible. The Chief of Fighter Forces is examining the possibility of personnel changes."

21. "10 April 1945.

"Because of the increasingly critical situation in the southeastern areas of Germany, the 10th (Antitank) Squadron of the 2d Assault Wing (S.G.2) is transferred from the zone of Sixth Air Fleet to the Fourth Air Fleet."

22. "11 April 1945.

"In view of the expected early commencement of the Russian major offensive, the Home Air Fleet and



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105 the Sixth Air Fleet are directed to prepare for the transfer at short notice of the 4th and 301st Fighter Wings, presently in the west, to the east. The actual displacement will be subject to orders from the Air Force High Command."

"23. "12 April 1945.

"In consonance with the new boundary line ordered by the Army High Command between Army Groups South and Center, the Air Force High Command orders a new boundary line between the Fourth and Sixth Air Fleets.

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24. "12 April 1945.

"To support the defense of Berlin the Air Force High Command issues a new directive to the Sixth and Home Air Fleets supplementary to the order to those headquarters dated 21 March. The new directive requires to arrange the Sixth Air Fleet to transfer one ground-attack group, 1 fighter group, and one composite reconnaissance squadron to Tempelhof or to an alternate airfield within the inner defense perimeter."

25. "13 April 1945.

"The Supreme Military Command Headquarters having ordered a new boundary line between CINC Northwest and CINC West, a corresponding boundary line for combat and

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reconnaissance operations is ordered between the Home Air Fleet (northern areas) and Air Force (Luftwaffe) Command West (southern areas).

"New boundary lines are also ordered between the Sixth Air Fleet and Air Force Command Northeast (Luftwaffe Kommando Nordost) as well as between Air Force Command Eastern Prussia and the Home Air Fleet.

"The Sixth Air Fleet is instructed to commit the fighter and ground-attack units stationed in the northern segment of its zone in action supporting the defenses of Air Force Command Northeast if the Russian offensive should commence sooner in the Frankfurt-Kuestrin area than in the Forst-Muskau area.

"The 1st Group, 66 Bomber Wing is assigned under Force Helbig for combat action against the Oder and/or Elbe River bridges.

"Because of the changed chain of command in the east all preparations for air support in the defense of Berlin will now be handled by Air Force Command Northeast, instead of by the Sixth Air Fleet, in close agreement with the Home Air Fleet.

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"Intelligence Officer makes oral report on latest information concerning enemy preparations for attack.... In this connection the Operations Officer suggests that



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Air Force Command Northeast should direct a heavy attack by concentrated forces today to neutralize the enemy artillery in the Oder River bridgehead. Chief of General Staff approves if Army Group Weichsel approves."

26. "16 April 1945.

"The Army High Command having ordered a new boundary line between Army Groups South and Center, the boundary line between the Fourth and Sixth Air Fleets is changed accordingly.

"Since the Bue-181 squadrons being resquipped for the use of Panzerfaust antitank rockets on airfields in southern Germany are depriving other units of the use of those airfields, and since the use of these units in operations holds out no prospects of success, Air Force Command West has requested approval to deactivate them. Since chances for these units appear better in the east, the Chief of the General Staff orders transfer of the squadrons to the Fourth Air Fleet if that air fleet accepts the offer. If the Fourth Air Fleet also declines to use them, Air Force Command West can take the aircraft for other purposes."

27. "17 April 1945.

"Because of the critical situation in the Bruenn area,

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107 area, the Fourth Air Fleet is directed to shift emphasis in its operations to that area.

"To support the defense of Berlin Special Purposes Operations Staff (Fuehrungsstab zur Besonderen Verwendung) is instructed to use the 2d Fighter Wing for the organization of a well-equipped tactical group and transfer this group to the general area of Berlin."

(3) Order issued by an Air Corps.

Order issued by the X Air Corps concerning Preparations for operations in Norway and the occupation of Denmark.<sup>1</sup>

.....

"3. 1st Group, 1st Dive-Bomber Wing: Effective D-Day, H-Hour (Wesertag, Weseruhr) this group will be held under alert at Holtenau ready to take off within one hour after receiving appropriate orders on a mission to break resistance against our advance in Jutland or during the landing in Seeland, particularly in Copenhagen....."

2. The Selection of Targets.

a. The Ruling Principles to be Observed in the Selection of Targets.

Excerpts from Air Field Manual L. Dv. 16.

Paragraph 125.

Cooperation with the Army will vary in accordance with the current situation, the time of action, the ob-  
l. Karlsruhe Document Collection.



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109      objective and nature of the mission, the terrain, and the type and strength of the forces available for the purpose. No set pattern exists. The determining factor is the requirement that the mission must produce results which will decisively affect the operations of the Army.

The all important point therefore is to strike targets which are such that attacks against them will be the most effective way of furthering the Army's intentions or supporting it in the execution of its mission on the ground, and also the most effective means of frustrating the plans and intentions of the enemy.

Such being the circumstances, air power can only have a decisive impact on the outcome of combat operations, if the principle of power concentration is applied by means of a proper consolidation of forces in point of time and area, and by means of continuing attacks in the most widely varying forms until the targets selected are destroyed.

Paragraph 127.

The scope of cooperation must not be too closely defined. ~~Combat~~ action against distant targets, such as the enemy air forces within the ground service organization, enemy transportation movements, and the enemy communications might be just as essential as attacks against targets in an area closer to the front lines.

109     Paragraph 128.

The mission of attacking these distant targets will often coincide with the missions of operational warfare. Proper timing will decide the impact of these attacks on the operations of the Army on the ground.

Paragraph 129.

The closer the opposing armies are locked in battle, and the more imminent the moment of the decisive battle, the greater will be the effectiveness of bomber operations in near front areas.

Through attacks in the rear these forces will disrupt the enemy supply installations and complicate the process of moving new combat forces forward. In segments difficult for the enemy to traverse, the bomber forces will endeavor to halt the flow of supplies, equipment, and personnel to the front. The important point here is that, consonant with the nature of air power, the bomber forces should be assigned vitally important targets which are such that their destruction can be expected if adequately strong forces are committed against them.

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Paragraph 130.

Against troops committed on line or in positions and who have not been jolted or are not hampered in their action



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air attack as a rule holds out no prospects of success commensurate with the effort expended; in exceptional cases, such action can nevertheless be very effective. In contrast, heavy mass attacks carried out in good time and usually at low altitudes against advancing reserves, against movements in the enemy rear, or against retreating troops can produce decisive results.

The adverse effects on enemy troop morale often exceeded the actual damage done.

Paragraph 132.

.....

Operations against targets within artillery range are only justifiable when the artillery cannot execute its mission to the full.

After the commander directing operations on the ground had defined the purpose of the air action requested from the air units allocated to support his operations, the selection of the targets for attack as a rule was a matter for the officer directing the operations of the air units involved to decide.

Only in cases when the purpose of the mission was inseparably connected with the target, for example when the purpose was to destroy enemy tanks or to neutralize enemy

111 fortifications would the commander directing the operations on the ground designate the actual targets to be attacked.

Frequently, the only person who could decide in detail the targets to be attacked in the execution of his assigned mission was the commander of the air units involved from his vantage point in the air. This will be the case particularly when the mission is to be executed by means of armed reconnaissance action, for which purpose individual air units will be assigned permanent areas for patrol and combat action. The following examples are offered to illustrate what has just been said.

b. Who Selected the Targets?

From "Instructions for the Conduct of Combat Operations in the West. Appendix 4 to Directive # 5 by CINC, Air Force, Concerning Preparations for the Campaign in the West. (Anweisung fuer die Gefechtsfuehrung im Westen. Anlage 4 zur Weisung Nr. 5 Ob. d. L. fuer die Vorbereitung des Feldzuges im Westen.)"

"The effectiveness of attacking units will be increased if the wings each are assigned permanent combat areas. Unless compelling grounds exist these areas should if at all possible not be changed. The familiarity of a unit with the terrain and defense conditions within its combat area will facilitate the approach, the direction of operations, and the actual attack.

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1. Karlsruhe Document Collection G V 2 a.



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In cases when the commencement of combat action is to be determined in advance, what might be called a fire sche-

dule will frequently <sup>be</sup> arranged, between the ground command

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and the air command involved, for the first phase of the attack.

aa) Annex to Operational Order By the First Panzer

Army for the Attack across the Meuse River on 13 May  
1940. Campaign in the West (13 May 1940).

bb) Order for Assault Regiment, 16 May, 1941,  
Concerning Support for the Airborne Operation by the VIII  
Air Corps.

Assault Regiment, AFO # L. 33525 O.U., 16 May 1941.  
L. G. P. A. Muenster/Westphalia  
 Operations Section # 112/41 Top Secret.

Subject: Support by VIII Air Corps, through Merkur West  
Ref. . Attached Photo, Malemes Airfield.

To: Headquarters XI Air Corps, Athens.

A. Strong support is requested against:

Target 1 (AAA position) From Y minus 30 to Y-Hour

Target 2 " " " Y minus 30 to Y-Hour

Target 8 (aircraft parked at  
 edge of airfield) From Y minus 30 to Y-Hour

Target 3 (tent camp) " Y minus 30 to Y minus 5.

Target 6 (ammunition  
 depot) " Y minus 30 to Y minus 10.

B. One air strike is requested against:

1. Appendix 22.

2. Karlsruhe Document Collection.

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112      Target 4) } Tent camps      From Y minus 20 to Y minus 10  
          Target 5) }  
          Target 7) }

Target 9) Settlement)  
          Target 10) west of } From Y minus 15 to Y minus 5  
                          Malemes }  
          Target 10a) airfield }

S/Meindl.

c. Examples Illustrating Target Selection in World War II.

Example One.

From After-Action Report, 13 November 1941, by II Air Corps, after five months of warfare in Eastern Theater.

".....

789 tanks destroyed

614 guns destroyed

14 339 vehicles of all types destroyed  
                          The number of vehicles damaged is inconceivable

240 field positions, machinegun pockets, gun positions, attacked with devastating results

Ceaseless attacks against moving columns, troop concentrations, and unloading operations have inflicted inconceivably heavy losses.

Example Two.

In the After Action Report under the title "Ge-  
schichtsbericht der 9. Armee und 2. Panzerarmee über die  
Schlacht im Uralbogen," it is stated on page 11:

"Over and above this the proud figures given by  
 the 1st Air Division showing the results achieved in  
 untiring attacks against ground targets and in air



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combat action supporting the Ninth Army and the Second Panzer Army as the current situation required are strikingly impressive. In many an hour of supreme tension the situation was saved by this air division, the units of which during the battle in the Orel River bend area were committed as many as five and six times daily, carrying out a total of 37 421 missions and shooting down a total of 1 733 enemy aircraft, of which number fighters alone accounted for 1 671 enemy planes against losses of only 64 aircraft. In addition, units of the Air Force put 1 100 enemy tanks, more than 1 300 trucks and tracked vehicles, and numerous enemy artillery batteries out of action. Delivering more than 20 000 tons of bombs on enemy targets, the units also inflicted heavy losses in personnel, railway rolling stock, and supplies on the enemy.<sup>1</sup>

3. Critical Review. During World War II the major share of operations by the bomber units of the German Air Force was in support of army operations on the ground.

In the 1939 campaign against Poland and the 1940 campaign in the west, (France, Holland, and Belgium) this use of air power, together with the operations of highly mobile and flexible armored forces on the ground, represented

1. Appendixes 23-33.

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an important element in the pattern of blitz warfare.

In the campaign against Russia the bomber forces were again committed primarily in support of the Army. This may have been wise until the advance on the ground reached the Dnepr River line, since it was the only possible way to insure a rapid advance on the ground. On this subject Air Field Manual L. Dv. 16 states with full justification in Paragraph 20:

The commitment of air power in missions of direct support for combat operations of the Army and the Navy is wise when operations of decisive importance within the pattern of the overall conduct of the war are involved.

Here again, the German Command failed to adhere to the principles established in the air field manual, according to which it is wiser to commit air power against distant targets which are such that their destruction or neutralization will have a decisive impact on the combat operations of the Army. In other words this means that air power should be employed against the resources of the enemy military forces.

After the autumn of 1941, from when on lengthy interval.

1. Appendix 34: Outline map "Unterstützung des Heeres durch die Luftwaffe im Frankreich Feldzug, 1940."



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115 occurred between the various major operations on the ground, it would have been essential to divert at least some elements of air power to operations against the resources of the Russian military forces and against the ~~flow~~ of reinforcements<sup>1</sup> and materiel to the front.

There is hardly any room for doubt that air attacks against the Russian tank factories, some of which had a daily output of 22 or an annual out put of 1 000 tanks of all types, would have produced more telling results than could be achieved by the laborious and costly process of antitank combat action on the field of battle.<sup>2</sup>

According to postwar information it appears that Russia in World War II produced 150 000 tanks, compared with a total of 25 000 produced by Germany.<sup>3</sup>

Added to this figure are the 13 303 tanks and other combat vehicles delivered to Russia by the Western Allies.<sup>4</sup>

## II. AIR OPERATIONS IN SUPPORT OF THE NAVY\*

### 1. The Mission as a Basis in the Selection of Targets.

#### a. Principles to Be Observed in Stating the Mission.

1. Appendix 35: Opinion of the Air Operations Officer, Air Force Operations Staff in Ia Op., Nr. 8865/43, g.Kdos., 9 Nov 43.
2. 2. Guderian: Erinnerungen eines Soldaten, pp. 171-172.
- 3x See also Appendixes 37 and 37: Photos of 1942 tank battle at Voronezh and of the Voronezh tank factory.
3. Oberstleutnant Eike Middeldorf: "Taktik im Russlandfeldzug", Mittler & Sohn, Frankfurt on Main.
4. Ominbook, May 1947.

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114 On this subject Air Field Manual L. Dv. 16 states as follows:

In Paragraph 20.

The commitment of air power in missions of direct support for combat operations of the Army and the Navy is wise when operations of decisive importance within the pattern of the overall conduct of the war are involved.

In Paragraph 134.

.....

Close cooperation with the Navy, and in particular direct participation in combat operations by naval forces requires familiarity with the inherent nature of naval warfare and the means of combat applied in such warfare.

In Paragraph 137.

If these essential conditions for close cooperation with the Navy are lacking, The Air Force can only provide indirect support for operations of overall importance at sea, but can commit its entire forces in missions serving this purpose.

b. Which Command Headquarters Stated the Mission?

These highly important decisions were usually taken by the



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117 Supreme Military Command, which issued the appropriate directives to the Air Force High Command. The Air Force High Command, in turn, was responsible for the execution of the mission.

A system of liaison officers served to regulate contact and cooperation, a subject dealt with in "Das Zusammenwirken von Luftwaffe und Marine im Westen von Kriegsbeginn bis zur Beendigung des Frankreichfeldzuges."<sup>1</sup>

c. Examples of Mission Assignment in World War II.

(1) Missions Assigned by the Supreme Military Command.

Example One.

From Hitler Directive # 16, 16 July 1940.<sup>2</sup> This directive states as follows concerning the air mission, in the event of a German landing in England, in support of the Navy:

"c. The mission of the Air Force is.....

"to neutralize coastal fortifications which can take effective action against the beachheads.....and against approaching enemy naval forces while these are still far distant from the crossing routes."

Example Two.

From Hitler Directive # 17, 1 August 1940, for the

1. Appendix 38.

2. Karlsruhe Document Collection.

117 Conduct of Air and Naval Warfare against Britain.Paragraph 3.

Air operations against enemy naval and merchant ships can take second place after such action (attacks against ports) unless particularly important targets of a fleeting nature are involved, or unless they will serve to increase the effectiveness of the attacks stated under Paragraph 2, or unless they are essential for the training of crew members for the continued conduct of the war.

Paragraph 4.

Intensified air warfare will be so conducted that the air forces committed <sup>can be</sup> /diverted at any time to support naval operations with adequate power against favorable fleeting targets.

P  
Example Three.

1

From Hitler Directive # 1, 31 August 1939.

In the conduct of warfare against Britain, ".... preparations will be made for air operations designed to hamper British seaborne import traffic, the British armament industry, and the transportation of British troops to France. Favorable opportunities will be

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1. Karlsruhe Document Collection.



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exploited for effective attacks against massed British naval units, particularly against battleships and aircraft carriers.

The Navy will conduct warfare against merchant shipping, particularly against that of Britain.

Example Four.

From Order By Supreme Military Command Headquarters, 14  
September 1940.<sup>1</sup>

1. b. As soon as preparations for the purpose are completed, the Air Force will execute its mission of attacking the British long-range artillery batteries firing on targets along the French coast.

Example Five.

From Hitler Directive dated 10 December 1940.<sup>2</sup>

To fulfill our agreement with our allies, German air forces in the approximate strength of a wing will be committed as soon as possible to operate from fields in southern Italy against targets in the Mediterranean Sea (for a limited period).

Their primary mission will be to attack units of the British Navy, particularly in the port of Alexandria, and to attack all enemy ships en route through the Suez Canal, the Straits of Sicily, and along the north African coastline.

1. Karlsruhe Document Collection. 2. Ibid.

119 Example Six.

From Order by the Supreme Military Command Supplementary  
to Hitler Directive # 20: Preparations for the Advance  
1.  
in the Balkans.

Instructions for Fourth Air Fleet.

c. ....as well as the naval forces interfering  
with the operations of our Army will be eliminated by  
means of attacks against the coastal bases and/or the  
naval units concerned.

Example Seven.

From Hitler Directive # 38, 2 December 1941, for Comman-  
2  
der in Chief, South (Mediterranean).

His missions are:

Forceful action to secure air and naval supre-  
macy in the area between southern Italy and Northern  
Africa in order to establish secure routes of communi-  
cation to Libya and Cyrenaica, for which purpose the  
continuous neutralization of Malta is particularly im-  
portant.

.....

Interdiction of enemy traffic through the Mediter-  
ranean Sea and British supply movements from Tobruk  
and Malta; the necessary action will be closely coor-  
dinated with that of the German and Italian naval forces

1. Karlsruhe Document Collection.  
2. Ibid.



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available for the purpose.

Example Eight.

1

From Hitler Directive # 43, 11 July 1942. (Continuation of Operations in the Eastern Regions of the Crimean Peninsula. Drive across the Straits of Kerch and along Both Sides of the Caucasian Foot Hills).

The mission of the Air Force in preparation for the operation is to neutralize as effectively as possible the enemy ports and enemy naval forces in the Black Sea.

During the operation the important mission will be, ....., to prevent enemy naval forces interfering with the crossing movement.

(2) Missions Assigned By the Air Force High CommandExample One.

From Directive # 4 by the Commander in Chief, Air Force,  
23 September 1939.

a. Since operations in the east are drawing to a close.....

B. Air Attacks.1. Missions of the Second Air Fleet.

a. Main emphasis still remains on the exploitation of favorable opportunities for effective attacks against British naval units, particularly against

1. Karlsruhe Document Collection.
2. Ibid.

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battleships and aircraft carriers, or against troop transport ships. For this purpose operations are authorized for the time being in the Bight of Helligoland area as far as  $5^{\circ} 30'$  longitude east and  $55^{\circ} 30'$  latitude north. Close contact and secure and speedy signal communications between Naval Base Command West (Gruppenbefehlshaber West) and the 10th Air Division are indispensable for the execution of this mission.

Air attacks against naval units within naval ports and in the English Channel are still subject to prior approval. Part A, Paragraph 3 of the Directive specifically prohibited attacks against British merchant vessels<sup>7</sup>.

Example Two.

From Directive # 5 By the Commander in Chief, Air Force,  
7 December 1939 for the Offensive in the West.

X Air Corps, under Major General (Generalleutnant) Geissler, responsible directly to me, will take combat action in accordance with my instructions against enemy naval forces, and will operate in accordance with my instructions against merchant shipping; the area of operations for the time being will include the North Sea, the English Channel and its western exits, and British

1. Karlsruhe Document Collection G V.



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ports on the eastern and southern coast of England, and will not extend outside of these areas. For this purpose authorization is given, if the overall military situation and weather conditions permit, to also dispatch small bomber units on armed reconnaissance missions, and to dispatch reconnaissance planes immediately ahead of bomber units.

.....

At the beginning of and during Army operations in the west, the X Air Corps will increase the severity of its attacks against:

Seaborne targets and port installations;

The ground service installations of the British Air Force on British soil insofar as these are so located that air forces can operate from them against targets on the Continent;

Troop transport ships from Britain to France and Holland, both in their ports of embarkation and while at sea.

Attacks against the ports of debarkation are a mission of the Second and Third Air Fleets.....

(3) By an Air Corps Headquarters.

Excerpt from X Air Corps Operational Order, 3 April 1940,  
for the Campaign in Norway.

The bulk of our bomber units will be held available for action against British naval forces approaching

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1. Karlsruhe Document Collection.

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1st Group, 1st Dive-Bomber Wing.....

In addition, the necessity might arise for action against British naval forces appearing in the Skagerak. One squadron will be held ready for transfer to Stavanger from Weser-Hour plus 6 hours on. After its arrival in Stavanger this squadron will be committed in action against British naval forces which might appear in the outpost coastal areas off the western coast of Norway or in the Skagerak. If the necessity develops, the group headquarters and its remaining squadron will displace to Drontheim in the afternoon for similar purposes.

## 2. The Selection of Targets.

a. Principles to be Observed in the Selection of Targets. On this subject Air Field Manual L. Dv. 16 states as follows:

### In Paragraph 138.

The Air Force will then direct its operations primarily against the enemy naval and air bases, insofar as these are within the striking range of its units. By destroying the enemy system of naval and air bases, the bomber forces will reduce the striking power of the enemy.....

### In Paragraph 140.

If the own naval action is directed against enemy



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123       troop transports or merchant shipping, the operations of the Air Force can be directed against enemy points of embarkation or debarkation, or against the ports handling import shipping. By attacking enemy embarkation and debarkation operations and destroying enemy imports, the Air Force will support the combat action of the Navy.

124       In Paragraph 141.

Attacks against installations of the enemy Navy at the coast or inland (such as naval bases, docks, shipbuilding and repairing yards, depots, and other military installations) can even be carried out when they are not coordinated in timing with naval operations.

Such attacks will weaken the enemy striking power and support the own conduct of naval warfare.

Over and beyond this, attacks against naval bases could compel the enemy fleet to leave port, providing the own fleet an opportunity for successful action.

Attacks against targets of the above type therefore will be executed in agreement with the Navy as a rule.

In supplementation of the above principles, the Commander in Chief, Air Force, on 10 January 1940 issued the following directive:

1

Ships at sea, as moving targets, are hard to

1. Karlsruhe Document Collection.

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hit. Only large and heavily maneuverable units, such as battleships, aircraft carriers, heavy cruisers, and merchant ships are favorable targets. In the case of smaller units the probability of hits is less favorable.

Attack missions will assign a priority and an alternate targets

Efforts to change the targets must not be allowed to lead to a scattering of forces. The number of targets assigned must at all times be commensurate with the strength of the units available.....

b. What Headquarters Selected the Targets? In special circumstances the Supreme Military Command or the Air Force High Command designated the targets to be attacked. Normally, however, the selection of targets was a responsibility of the field commander responsible for the execution of a mission.

In cases of direct air support for the Navy, the appropriate naval command stated to the Air Force the targets which it desired to be taken under air attack. The execution of the requested air strikes was then a matter of the air commander involved.

c. Examples Showing the Selection of Targets During World War II.



(1) Target Selection By Supreme Military CommandHeadquarters.Example One.

From a Directive By Supreme Military Command/Headquarters,  
24 August 1940, Instructions to Restrict Combat Action.

"a. Immediate and unrestricted armed action is prohibited:

"a. In the Proclaimed Blockade Area around

England:

" (1) Against Irish ships in waters within ten nautical miles of the coast of Ireland;

"(2) Against ships having a special transit approval if they are marked with special identification markings, and after their name, cargo, and course, have been stated.

"b. Outside the Proclaimed Blockade Area around

England.

(1) Against any ships which cannot be unmistakably identified as enemy ships (the term "enemy ship" to include Norwegian, Dutch, and Belgian ships if these are encountered traveling at night without lights and in waters outside German jurisdiction and not able to prove that they are acting under instructions from shipping firms domiciled within the areas or territories

under German occupation.

"(2) Against ships which can be identified as passenger ships not traveling in convoy.

"Ships of Spanish, Japanese, Russian, and USA nationality and ships chartered by these nations or by Switzerland for supply movements (the latter sailing under the Swiss flag and marked on the sides with that flag) are not under any circumstances to be stopped or intercepted or sunk in these areas. "

Example Two.

From Hitler Directive # 18, 12 November 1940. Preparatory Measures for the Conduct of the War.<sup>1</sup>

"Air Force. For the air strike against the port of Gibraltar all units will be earmarked which can participate with prospects of success.

"For the combat action then to follow against naval units and in support of the attack against the Fortress of Gibraltar it is of particular importance to transfer dive-bomber units to Spain."

Example Three.

From Hitler Directive # 40, 23 March 1942, Concerning Command Authority in Coastal Areas.<sup>2</sup>

"II, 2: For combat action against embarkation operations or against the transport fleet all suitable

1. Karlsruhe Document Collection.  
2. Ibid.



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naval and air forces will be consolidated, the purpose being to destroy the enemy as far as possible from the coast."

Example Four.

From Hitler Directive # 44, 21 July 1942.<sup>1</sup>

"The importance of this supply line (the Murman rail route) will again increase during the season in which weather conditions exclude any possibility of successful action against the convoys in the east."

(2) Examples of Target Selection by the Air

Force High Command.

Example One.

From Order by the Commander in Chief, Air Force, for the Attack against Poland (Operational Study 1939, Volume II, Revised Edition 1 March 1939).<sup>2</sup>

"Attacks against Gdynia may only be executed after the deadline established for the departure of foreign neutral ships has expired. Authority to commence action will be given by the Commander in Chief, Air Force."

"In contrast, combat missions against Putzig-Hela will be included in the first attack action."

1. Karlsruhe Document Collection.  
2. Ibid.

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Example Two.

Excerpt from "Air Operations in the North Sea Area 1939"  
(Luftoperationen im Nordseeraum 1939)<sup>1</sup>

"Pursuant to orders from the Commander in Chief, Air Force, British naval elements were taken under attack in the central areas of the North Sea on 26 and 27 September 1939. An aircraft carrier and a battle cruiser received several hits."

Example Three.

Excerpt from "Air Operations in the North Sea Area 1939."<sup>2</sup>

"On 17 October 1939 the series of attacks against Scapa Flow commenced. Three squadrons (one Ju-88 squadron from 1st Group, 30th Bomber Wing, and two He-111 squadrons from the 26th Bomber Wing), under a unified plan, had instructions to attack Battle Cruiser Repulse, allegedly damaged and presumed to be at Scapa Flow, until "decisive results" were achieved."

Example Four.

Commander in Chief, Air Force, 25 October 1939.<sup>3</sup>

"Missions.

".....

"b. Targets will be considered as of primary importance in the following sequence:

1. Karlsruhe Document Collection G V 1; also Appendix 39.
2. Karlsruhe Document Collection, G V 1.
3. Karlsruhe Document Collection.



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Aircraft carriers

Battle cruisers

Battleships

Cruisers.

"Particular importance attaches to the British Mine-Laying Cruiser Adventure, which might be considered as a special type ship for mining operations in the Bight of Helligoland."

Example Five.

So far as the present author can recollect, the following target priorities were established for combat action against British convoys in the Mediterranean Sea engaged in moving supplies and replacements to Malta.

Regular and auxiliary aircraft carriers

Merchant ships in order of size, with first priority on oil tanker ships.

Naval ships providing escort protection. These were only to be attacked under particularly favorable circumstances.

Example Six.

From Directive By Commander in Chief, Air Force, # 5,  
Concerning Preparations for the Campaign against France. 1

"Second Air Fleet will take under attack any troops detected debarking along the coast of Holland and Belgium."

Example Seven.

~~XXXXXXXXXXXXXXXXXX~~

1. Karlsruhe Document Collection.

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From an Order By Telephone to Fourth Air Fleet on 20  
February 1944.

"Now that the severe fighting in the zone of the First Panzer Army is drawing to a close, Fourth Air Fleet will shift emphasis in air combat and aircarried supply operations to the right flank.

"The main targets of attack will be enemy shipping concentrated at the Taman Peninsula, and enemy preparations for attack on the Kerch Peninsula and opposite our Ssiwash positions....

"Luftwaffenfuhrungsstab Ia

" 9245/44, Top Secret, Command Person-

" nel Only.

"S/ Christian."

Example Fight.

Attacks against Invasion Ports of Embarkation.

"Fernschreibstelle (Teletype Station) Command Personnel  
 Only  
 Robinson

# 011566, 7 May 1944 Officer Courier Only.

"Remark: Command Priority Message. Top Secret.

G-Rob.

"To Third Air Fleet.

"Reference: Lfl. Kdo 3 Ia Op # 361/44 g.Kdos, Chefs.,  
 27 April 1944.

"1. The operational plans and intentions submitted  
 with reference letter are approved.



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"2. In addition to the targets in Paragraph 2, all those ports will be taken under attack in which concentrations for the invasion are detected. Furthermore, all smaller towns and villages, such as those ordered in OKL. FueSt. Ia/Flieg.Nr. 10967/44 geh.Kdos., 5 May 1944, will be attacked, as well as London during weather conditions which preclude attacks against smaller targets.

"3. Within the pattern of attacks against invasion embarkation ports land mines can also be used, particularly those armed with new-type detonators so far as these have been released for use. D-instruments will not be used (refer OKL. FueSt. Ia/Flieg. Nr. 10968/44, g.Kdos., 5 May 1944).

"4. The 2d Group, 51st Bomber Wing, will combine its harassing attacks against the enemy ground service organization with attacks against settlements.

"OKL. FueSt. Ia/Flieg/ (Robinson)<sup>1</sup>

"Nr. 9600/44 g. Kdos. Chfs."

#### INDIVIDUAL EXAMPLES FROM 1945

Quoted from the War Diary of the Air Force High Command.<sup>1</sup>

Example One, 7 February 1945.

Commanding General, German Air Forces in Norway

is authorized, in modification of the operational

1. Karlsruhe Document Collection.

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orders for 26th Bomber Wing dated 1 November, to also employ the wing against merchant shipping if conditions are unfavorable for attacks against aircraft carriers."

Example Two, 10 February 1945.

"Commanding General, German Air Forces in Norway, has delivered the after-action report requested by the Air Force High Command Operations Staff on the first mission flown with air torpedos against a PQ convoy. According to this report the failure of this first mission of the type is due to faulty action on the part of the command of the 26th Bomber Wing. More Hohen-twiel instruments (Airborne long-range naval and submarine search equipment) have been lost. Neither the wing commander nor experienced group commanders participated personally in the execution of the mission."

Example Three, 11 February 1945.

"Owing to the southward shift of the ice line to the Aaland Sea area the possibility exists that Swedish ships might on their way to Finnish ports enter that part of the eastern reaches of the Baltic Sea established on 26 January as a zone of operations. For political reasons the order given at the time on the 'use of weapons' against Swedish ships is therefore



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modified to read that care will be taken to avoid the accidental sinking or accidental attacks against Swedish ships."

Example Four, 20 February 1945.

"In order to establish whether the Russians are using the port of Memel for E-boat operations, Sixth Air Fleet is instructed to conduct air reconnaissance over Memel. Furthermore, Sixth and First Air Fleets receive orders that all fighters committed in escort of patrol missions will attack the enemy E-boats."

Example Five, 11 April 1945.

"Commanding General, German Air Forces in Norway, suggests that the 26th Bomber Wing should be committed occasionally against enemy convoys along the east coast of England, in order to enable the wing to maintain its units in operable status. Chief of Air Force General Staff agrees in principle and will obtain approval from the Reich Marshal."

Example Six, 12 April 1945.

"Following oral report by Chief of Air Force General Staff, the Reich Marshal has approved commitment of the 26th Bomber Wing against enemy convoys along the east coast of England."

Further examples of air attacks against shipping will be found in the section on operations against import traffic.

### (3) Other Examples of Target Selection.

#### Example One.

Bombing attacks during the campaign in Norway produced the following results:<sup>1</sup>

#### Ships sunk.

AAA Cruiser Curlew, British	on 26 May
Sloop Bitter, British	on 30 April
Destroyers Gurkha, British	on 9 April
Afridi "	on 3 May
Bison, French	on 3 May
Grom, Polish	on 4 May.

#### Ships damaged.

Cruiser Suffolk, British	on 17 April
" Aurora "	on 7 May
AAA Cruiser Curacao "	on 24 April
" " Cairo "	on 28 May
Cruiser Emile Bertin, French	on 19 April
Sloop Pelican, British	on 22 April
" Black Swan "	on 28 April
Destroyer Eclipse, "	on 11 April
" Maori "	on 2 May
" Somali "	on 15 May.

#### Example Two.

Shipping Losses Inflicted on the Western Allies during Combat in Greece and during Evacuation of the Western Forces.<sup>2</sup>

1. Churchill: "The Gathering of the Storm," Book II, p. 719.
2. Churchill: "The Grand Alliance," p. 233. See also Appendix 40-47 for achievements of German aircraft.



"From 21 April to the completion of the evacuation 26 ships were lost through air attack. Twentyone of these were Greek ships, including 5 hospital ships. The others were British and Dutch ships."

### 3. Critical Review.

a. The Assigning of Missions. Through Britain's entry into the war, followed by that of the USA in 1943, and through the extension of the war to the Mediterranean, the whole war entered a nature and scope far exceeding the strength and capabilities of the German Air Force.

The German Air Force found itself compelled to conduct operations at sea in the Baltic and North Seas, in the Atlantic, in the Mediterranean, and in the Black Sea.

For such purposes the German Air Force lacked the properly trained units and the types of specialized aircraft and weapons these units would have required.

In spite of efforts in this direction, Germany did not succeed in developing and manufacturing a serviceable front line 4-engine bomber.

It was only during the war that success was achieved in the development of usable special type weapons such as air torpedos and remote-control bombs.

Close cooperation with the Navy was a rare occurrence.

In the later stages of the war such close cooperation

134      existed primarily in a certain measure of coordinated action between aircraft and submarines.

135      Instead of coordinated action with the Navy what very soon developed was a type of "air warfare at sea" which followed its own principles. The Navy, which maintained a permanent liaison staff under Admiral Moessel at Headquarters of the Air Force High Command found itself driven increasingly into an advisory role if its opinions were asked at all on the problems of air warfare at sea.

Then the Air Force found itself face to face with a new and hitherto unforeseen mission, that of protecting German and friendly convoys in the North Sea, the Baltic, the Mediterranean, and at times also in the Black Sea. The targets for attack in the execution of this mission were no different than those normally encountered in warfare at sea and included ports, enemy naval elements, which could menace the convoys; these latter in turn included surface and submarine units approaching the convoy under escort or which could threaten it by laying mines in its course.

b. The Selection of Targets. As is obvious from the examples offered above, it became necessary for the Command to establish a sequence of priority for attack determining which types of ships were to be taken under attack first



135 when various types of enemy naval ships were encountered simultaneously operating as a single unit.

It was logically sound to always first endeavor to destroy any regular or auxiliary aircraft carriers included in a fleet encountered, since primary importance attached to the battle for air superiority or supremacy also at sea.

Owing to the speed plus their strong defenses and their high maneuverability the smaller types of naval craft, such as destroyers, or E-boats, proved very difficult to hit, so that attacks against such targets required large expenditures of ammunition. It was found frequently that, for these reasons, action against such targets was only practicable when such craft through their very existence constituted a direct threat to friendly military forces or installations.

The Second Air Fleet therefore as a rule desisted from attacking smaller types of enemy naval units returning to Malta from a convoy mission, although E-boats did represent fairly good targets for attack with aircraft-carried cannon.

In the category of merchant vessels, tankers were a priority target.

On 16 October 1939 the German Air Force commenced a series of attacks against Scapa Flow, committing three squadrons in this mission, namely, one squadron with

136 the Ju-88 aircraft recently introduced as the standard bomber type (this squadron was a component of the 1st Group, 30th Bomber Wing), and two He-111 squadrons from the 26th Bomber Wing. The purpose in these attacks was to completely destroy the battlecruiser Repulse, reportedly damaged and assumed to be in port at Scapa Flow. Quite apart from the fact that the forces assigned for the purpose were totally inadequate, the mistake was made of executing the mission in three successive waves of aircraft spaced one hour each apart. Consequently, the purpose desired was not achieved. Instead, the whole action merely served to make the British Command aware of how inadequate the defenses were at this, their most important naval port, with the result that the British Fleet transferred from Scapa Flow Bay until the bay was adequately defended six months later.

The net result of the action thus was that the German Air Force sacrificed an opportunity to deal a successful blow with stronger forces against the British Navy.<sup>1</sup>

1. Churchill: "The Gathering Storm," p. 491.



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## CHAPTER THREE

## OPERATIONAL OR STRATEGIC AIR WARFARE

137 I. OPERATIONS TO INTERDICT COMMUNICATION AND TRAFFIC ROUTES.  
BASIC CONSIDERATIONS.

On this subject Air Field Manual L. Dv 16 contains the following passages:

In Paragraph 161.

Operations against enemy railroads and other transport facilities inflict material damage on the enemy and can serve to dislocate their entire transport system.

Attacks in the rear areas of the zone of operations complicate the forward movement of replacements and supplies to the front and, particularly during critical situations, cause serious difficulties in getting supplies to the troops in time.

Furthermore, disruption of railroads, roads, waterways, and lock installations can serve to isolate specific areas (ports of entry, manufacturing centers, inland harbors) from the hinterland and thus, by depriving an enemy country of the necessary supplies, seriously lowers its capabilities for resistance.

In Paragraph 162.

Operations against the enemy rail and other

137 In Paragraph 162--Continued.

transportation networks assume decisive importance during the concentration of troops and/or during regrouping movements.

In such situations operations to interdict the enemy communication networks must be conducted in very close agreement with the Army.

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A. RAILROADS.

1. The Assigned Mission as the Basis for the Selection of Targets.

a. Principles to be Observed in Stating a Mission.

On this subject, Air Field Manual L. Dv. 16 states as follows:

In Paragraph 163.

Although the increasing motorization of modern armies creates the possibility to move large bodies of troops in cross-country movements, it will not be possible to dispense entirely with the necessity for rail transportation of the bulk, particularly if long distances are involved.

The mission of operating against enemy concentrations and other troop movements thus consists largely of action to interdict rail transportation.



138      In Paragraph 164.

Proper timing of the attacks is important.

If a troop movement takes place partly in overland marches, this will reduce the time during which the whole movement will be in progress, and will also reduce the time during which the movement can be attacked while in rail transit and the duration of any action taken during such time.

An extensive exploitation of the dark of night for transportation movements, particularly in areas within range of long-range air reconnaissance, makes it difficult to identify and attack them in time.

In Paragraph 165.

Only on rare occasions will it be wise to direct preventive attacks against railroads prior to a troop movement expected to commence soon. Such action might result in failure and unnecessary expenditures and will allow the enemy an opportunity to repair damaged sections of the railroad in time or to reroute the entire movement. Furthermore, the impact will be greater if the attack takes place while the rail routes are crowded with transport trains.

138      In Paragraph 166.

In contrast, profitable results are likely to be achieved in preventive attacks aiming at the destruction of especially important manmade structures, such as river bridges, viaducts, and tunnels, which are such that considerable time would have to be spent to restore them to operability.

139      In Paragraph 170.

Once a transportation movement is unmistakably detected, the attack must be delivered as soon as at all possible.

PEACETIME PREPARATIONS FOR ACTION TO INTERDICT AN ENEMY RAIL NETWORK.

On the basis of a knowledge of the configuration of a frontier and since it was to be expected that an enemy would carry out large transportation movements in the event of war for the protection of those frontiers, it was possible already during peace to establish plans of operations designed to interdict the enemy railroad network.<sup>1</sup>

In Germany the preparation of such plans was carried out in close cooperation between the Air Force High Command and the Army High Command, the Rail Transport Branch of the Supreme Military Command also participating in a decisive role.

1. Appendix 6.



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Concerning the establishment of a plan of operations of this type, Air Field Manual L. Dv. 16 states as follows:  
In Paragraph 171.

The attack must be planned to interdict the entire movement and preclude all possibilities to reroute it.

An overall plan must provide not alone for interdiction of the route on which the movement is currently taking place but also for the concurrent destruction of all parallel lines which could be used to reroute the movement, and of all connecting lateral lines.

b. What Command Headquarters Assigned the Mission?

The mission was stated and assigned by the Supreme Military Command, or by the Air Force High Command acting in agreement with the Army High Command, or by an Air Force field command.

In many cases the plans of operations prepared during peacetime provided the necessary basis.

On this subject Air Field Manual L. Dv. 16 in Paragraph 171 contains the following passage:

The instructions established during peace for operations against railroads provide a basis for planning and decisions. In consultation with railroad experts they will be supplemented and adapted to the current situation.

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c. Examples of Mission Assignments in World War II.

Example One. Concerns the planned invasion of Britain (Operation Sea Lion) in 1940.

From Directive # 16, 16 July 1940. Concerning the mission of the German Air Force in the event of a landing in England, the directive states as follows on the subject of interdiction of the enemy rear communications:

"c. The mission of the Air Force is....."

".....to destroy important transportation roads which could serve for the forward movement of enemy reserves  
....."

Example Two.

From Hitler Directive # 21, 18 December 1940: "Case Barbarossa Campaign against Russia.

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"B. ....

"In accordance with their degree of importance for the conduct of operations the Russian rail routes will be interdicted or will be taken under control through the seizure of nearby important installations, such as bridges, in bold airborne operations by paratrooper and air-carried units."

Example Three.

From Hitler Directive # 41, 5 April 1942 (Planned drive on Stalingrad and Caucasus by Army ground forces).



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"If enemy concentration movements are detected, the main routes to the concentration area and the rail routes leading to the area of operations on the ground will be taken under attack far in the interior in order to achieve disruption of long duration; for this purpose destructive attacks will be directed primarily at the rail bridges across the Don River."

Example Four.

From Directive # 44, 21 July 1942

".....

"2. What is now of importance is to also cut the northern supply route which connects Soviet Russia with the Anglo-Saxon powers. Primarily this means the Murman railroad, on which the bulk of the materiel deliveries from America and Britain are shipped during the winter months. The significance of these supply routes will again increase when the season of the <sup>year</sup> arrives in which weather conditions preclude the possibility of successful operations against the convoys in the North."

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Example Five.

Hitler Directive # 45, 23 July 1942.

"Because of the decisive importance of the Caucasus output in mineral oil for the continued conduct of the war..... In order to deny the enemy any possibility of

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receiving oil supplies from the Caucasus, however, and to achieve this as soon as possible, the early interdiction of the.....rail routes still available for such purposes is of particular importance."

(2) Mission Assignment by the Air Force High Command

Example One.

Railroad Interdiction in the Polish Campaign, 1939.

From Order by the Air Force High Command for the Attack against Poland; Excerpt from Operational Study 1939 (Plan-studies 1939), Volume II, p. 9.

"3. The mission of the Air Force is

"a. Counter-air operations/"

"b. Missions of direct and indirect support for the Army/"

"Attacks against Polish mobilization centers/"

".....and through lasting interruption of the rail routes used in the strategic assembly movement to either delay an orderly assembly of the army forces or to halt the movement of enemy supplies and replacements, in accordance with the current situation."

Example Two.

During the Campaign in the West, 1940. From Directive # 5 by the Commander in Chief, Air Force, for preparations for the campaign in France.



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"In order to delay the movement of Anglo-French army forces into Belgium, interdiction of the ..... rail routes in Northeastern France and in Belgium is essential. The attacks will be directed primarily against ..... and rail transports.

"In agreement with the army groups the air fleets will plan and prepare for the attacks against rail routes .....in Belgium. Attacks designed to destroy rail bridges will be carried out only with prior approval by the army groups....."<sup>1</sup>

Example Three.

From the War Journal of the Air Force High Command.<sup>2</sup>

"17 February 1945.

"Sixth Air Fleet is instructed to conduct air photo reconnaissance as early as possible over the rail routes which are of particular importance for enemy supply movements, namely, the Warsaw-Kutno, Warsaw-Litzmannstadt, Warsaw-Czenstochau, Deblin-Skarzysko, and Deblin-Krakau routes, and to take any enemy materiel and personnel movements detected on these routes under day and night attack, particularly in the zone of Army Group Weichsel."

1. Appendix 49.

2. Karlsruhe Document Collection.

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Example Four.

1

From the War Journal of the Air Force High Command."18 February 1945.

"Supplementary to the order given on 17 February to attack enemy movements of materiel and personnel, the Sixth Air Fleet is given special instructions to attack heavy enemy rail transport movements on the routes leading west."

Example Five.

2

From the War Journal of the Air Force High Command."23 February 1945.

"Since the Russians for some time past have been moving the bulk of the supplies forward by rail in the eastern territories occupied by their forces, the order issued on 17 February for the Fourth and Sixth Air Fleets to attack enemy supply and replacement movements is supplemented with instructions to increase the scope of attacks against railway trains and particularly against locomotives."

Example Six.

3

From the War Journal of the Air Force High Command."18 March 1945.

1. Karlsruhe Document Collection.
2. Ibid
3. Ibid.



"Since, due to aviation fuel shortages, possibilities no longer exist for ..... and the 14th (Rail Interdiction) Squadron, 55th Bomber Group to operate, these units will be deactivated."

Example Seven.

" 2 April 1945.

"In view of the probability that the air units becoming available for other use will be transferred from Western and Eastern Prussia to other areas of operations, the Sixth and First Air Fleets, and Air Force Command Eastern Prussia (Infltrawaffenkommando Ostpreussen) are instructed to increase reconnaissance activities over the rail routes which might be used in these transfer movements."

~~X2YX THE X2YX INFORMATION IS TAKEN FROM~~

From an Order by an Air Corps.

2

Example.

"II Air Corps /under General Loerzer, in the 1940

1. Karlsruhe Document Collection.
2. Ibid.

145 campaign in France/..... will delay the forward movement of enemy forces from France through attacks against the rail routes in use for such movements to and across the Franco-Belgian frontier....."

## 2. The Selection of Targets.

### a. Principles to be Observed in the Selection of Target

On this subject Air Field Manual L. Dv. 16 states as follows:

#### In Paragraph 166.

In contrast, profitable results are likely to be achieved in preventive attacks to destroy particularly and large important/manmade structures, such as river bridges, viaducts, and tunnels, the repair of which would take considerable time to restore their operability.

#### In Paragraph 172.

Interdiction of the railroad network through the destruction of manmade structures at which a number of routes converge (river bridges, mountain passes) is particularly effective. However, the greater their importance to the enemy, the more strongly will they be defended, and, consequently, the more difficult will it be to attack them. The problem must be examined of to what extent effective destruction not achievable by air attack could be carried out by air-dropped sabotage teams.



146 In Paragraph I73.

Damage to rail tracks in the open country is more easily achieved but at the same time usually less effective. Here also small river bridges, embankments, and cuttings are profitable targets for attack.

Owing to their large size, large rail junctures and rail depots appear tempting targets. However, they should generally not be selected as targets for air attack.

The multiplicity of tracks at such rail depots enables the enemy to reroute traffic even if a number of the tracks are destroyed.

The destruction of signal and switch installations can hamper and delay, but cannot paralyze traffic.

Furthermore, large rail depots are usually heavily defended and maintain adequate reserves of materials and personnel for the quick repair of any damage.

In Paragraph I74.

Attacks against moving trains are effective. The effectiveness will be enhanced if the attacking planes succeed in destroying the tracks just ahead of the moving train, particularly while the train is on an embankment or in a cutting.

In Paragraph I75.

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Attacks against unloading operations are advisable if the attacks against the movement itself have failed, or if the movement was detected too late to be taken under attack.

In favorable terrain conditions and if the enemy forces are crowded into a confined space attacks while the enemy forces are loading or unloading can lead to sizable tactical successes.

Contrary to the concepts expressed in the above principles however, the German Air Force expended greater effort on attacks against rail depots. In order to prevent the movement of transports through large rail depots the German Air Force developed a method which is explained more fully in Appendix 1 48. No provision was made in this method for action against railway rolling stock.

b. What Headquarters Selected the Targets? Whereas either the Supreme Military Command or the Air Force High Command as a rule assigned and stated the mission for rail interdiction operations, the selection of the individual targets was usually a responsibility of the command directing the execution of the mission. In special circumstances the air fleet headquarters reserved the right to designate specific

A. Appendix 48: "Schematisches Beispiel einer Bahnhof Bekämpfung."



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147 targets.

148 c. Examples of Target Selection in World War II. The fol-  
 lowing After-Action Report by the II Air Corps, 13 November  
 1941, after five months of warfare against Russia, is offered  
 as an illustration of the selection of targets.

According to the report, units of the corps in the re-  
 port period executed 3 579 railroad interdiction missions. The  
 results achieved were

1 736 points at which railroads were interdicted

159 railway trains destroyed

1 584 " " damaged

304 locomotives destroyed

103 " " damaged

Loading and unloading operations taken under attack  
 continuously.

The following order by the Sixth Air Fleet, controlling  
 Air Force Operations in the center of the eastern front, to  
 its subordinate 200th Air Command and dated 23 March 1945,  
 exemplifies the specification of targets for attack by an  
 air fleet headquarters.

"A. Operations against Vistula River Bridges:"

1. The object is to cause lasting ~~interruption~~ of  
 rail communications in the far enemy rear in order to  
 retard the new enemy concentration of forces and the  
 I. Karlsruhe Doc. Collection; See also Appendixes 50-52.

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movement of enemy reserves and supplies, which will have a decisive impact on the overall course of operations on the ground.

Speedy action is urgently required.

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With the current status of development of the enemy railroad network being as it is, the immediate destruction of the following important railroad bridges, in order to isolate the entire area west of the Vistula River, is essential. In order of priority sequence:

- a. The Vistula River bridge at Warsaw
- b. The Dunajec River bridge east of Krakau
- c. The Deblin Vistula River bridge
- d. The Thorn Vistula River bridge.

.....

3. Over and above this, preparations will be made for action to insure that bridges interrupted will remain inoperable (also, if necessary, for repeat attacks if the initial attacks should fail), and here the following bridges, after their repair by the enemy, will be included in the list of targets:

- a. Furdon bridge, east of Bromberg
- b. Sandomierz bridge (if ~~repaired~~ repaired)
- c. Vistula River bridge in the Schroettersburg-Dirschau section (after it has been repaired).



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Code Designation: Eisenhower I.

B. As part of the continuing mission, which will soon assume high importance, of combat action against the Oder River bridges, it will also be necessary to insure the destruction of all important bridges across the Oder River, and preparations will be made for such action shortly after commencement of the expected large-scale enemy offensive. Preparations will provide for the possible necessity to commit composite aircraft, for which purpose the 50th Bomber Wing will be employed.....

The following report by the Sixth Air Fleet to the Air Force Operations Staff can also be regarded as another example.

Command Personnel Only Command Priority Message

2 April 1945

Officer Courier Only

To OKL FueSt. Ia. Robinson

1st Copy

Reference: OKL FueSt. # 10685/45 g. Kdos./Chefs.

Intentions: To commit composite aircraft against rail bridges.

1. The plan is to achieve a single concentrated and simultaneous attack striking the rail bridges at Dunajec, Dublin, Warsaw, and Thorn.

Size of Attack: Six composite aircraft per bridge plus two per attack force as standby reserve at takeoff.

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Overall Strength Required: 32 Mistel composite aircraftExecution:

Case A. (possible only up to night of 4-5 April or from night of 22-23 April on).

Takeoff at night, attack to last at latest until one hour after first dawn.

Action to be supported by 15 aircraft from the 2d Group, 4th Bomber Wing, to mark the route.

Case B. Takeoff, attack, and return landing during daylight if cloud coverage is adequate.

2. In the event of a lengthy spell of weather offering favorable attack conditions for action against only some of the intended targets, attacks will start simultaneously, as a part mission, against all targets which currently can be attacked. In such case efforts to be made to at least destroy those bridges simultaneously which are of vital importance for separate enemy operations against Army Group Weichsel or Army Group Center.

S/ v. Greim

Lfl. Kdo. 6, # 856/45 g.Kdos./Chefs.

Chief of General Staff (E) to  
HQ, Sixth Air Fleet. # 856/45 GKDOS Chefsache received:  
S/Oblt. Weigert, Robinson. 3 April 1715 ' ' ' QSL properly  
received. Sattig Lt LFKQ

3. Critical Review.

a. Statement and Assignment of Mission.



151 In the course of the war the German Command time and again resorted to large scale railroad interdiction operations. One example out of many is that of the railroad interdiction missions assigned during operations to seal off the battle area of Kiev in the 1 September-25 September 1941 period.<sup>1</sup>

In view of the paucity of traffic routes in Russian territories, the German Air Force High Command attached such high importance to the interdiction of rail routes, that it at certain stages organized temporarily special railroad interdiction squadrons.

b. Target Selection. In deducing and compiling lessons learned on the subject of the conduct of air warfare, which found their expression in Air Field Manual L. Dv. 16, those compiling the manual made the mistake of considering a combat action against railroads too exclusively from the viewpoint of actions against transportation movements.

It escaped their notice that the accumulation of loaded rail freight cars at sizable rail depots for all practical purposes, because of their size, should be considered as equivalent with large storage depots. Very frequently supplies were "stored" at these points on a scale and in a concentration would have been hard to find elsewhere. Another circumstance to be taken into consideration was that Germany's opponents,  
1. Appendix 53.

152 through their practice of leaving trains loaded with ammunition standing in rail depots, facilitated action to destroy the entire rolling stock in such depots.

In practice the German intermediate commands, probably because of their realization of the implications, did not allow themselves to be restrained from succumbing to the "tempting targets" referred to in Paragraph 173 of Air Field Manual L. Dv. 16. The air photo of Vyazma included among the specimen photos<sup>1</sup> shows a bomb hit pattern from an attack of this type against a large rail depot, a type of attack carried out again and again by the German Air Force during the War. Other of the photos of the ground shows the results<sup>2</sup> achieved in such attacks very clearly.

The Russians were ~~not~~ expecting attacks of this type, a circumstance possibly due to their knowledge of the German air field manual. At the beginning of the campaign they therefore carelessly left their ammunition and fuel trains standing in rail depots among other trains loaded with other types of supplies. Thus, surprise attacks by units of the II Air Corps against the large rail depots of Vyazma and Bryansk resulted in the greatest destruction so far achieved, as will be seen from the photos showing the results of bombing attacks against the Vyazma rail depot.<sup>3</sup> All rail tracks

1. Appendix 54.  
3. Appemdix.

2. Appendixes 50, 51.



152 in the depot area were destroyed, and the depot remained inoperable for a period of fourteen days during a particularly critical phase for the Russian side.

#### B. CANALS AND OTHER WATERWAYS.

##### 1. The Mission as the Basis in the Selection of Targets.

##### a. Principles to be Observed in the Statement and Assignment of Missions.

The following passages dealing with this subject are quoted from Air Field Manual L. Dv. 16:

##### From Paragraph 161.

Operations against enemy ..... traffic routes inflict material damage on the enemy and can serve to dislocate their entire transport system.

.....

Furthermore, the interdiction of ..... waterways and lock installations can serve to isolate specific areas, such as import ports, manufacturing or other producing centers, and inland ports, from the hinterland and thus, by depriving the enemy country of the necessary supply shipments, can seriously decrease its capabilities for resistance.

From Paragraph 153. (Which deals with warfare against the enemy manufacturing and other producing economy).

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In some cases effective results can be obtained through destruction of the ..... waterways playing an important role in the outward transportation of the production.

b. What Command Headquarters Stated and Assigned the Mission?

As a rule responsibility for the statement and assignment of missions lay with the Supreme Military Command, the Air Force High Command, or the next lower level of command in the Air Force, namely, the air fleets.

c. Examples of Mission Statement and Assignment in World War II.

(1) By Supreme Military Command Headquarters.

Example One.

Mediterranean Campaign 1940-41. Directive # 18, 12 November 1940. Preparatory Measures for the Conduct of Operations.

.....

.....

3. Italian Offensive against Egypt.

Air Force.

Will prepare for offensive operations against Alexandria and the Suez Canal, in order to deny the British the use of the latter in the conduct of the war.



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Example Two.Campaign against Russia, 1941. Directive # 45, 23 July 1942.

Shipping in the lower reaches of the Volga River  
will be disrupted through mine-laying operations.

Example Three.From a Directive By the Navy High Command, 24 August 1940:"Instructions Restricting the Zones of Combat Operations."

".....

"B. In the Pan-American safety zone our naval forces  
will not seek battle on their own initiative.

"Mine-laying operations in this zone and also in  
American  
other/coastal waters not included in the declared zone  
also are subject to prior approval by the Fuehrer.

That plans were taken into consideration later to destroy  
the Panama Canal is revealed by the following passages from  
a publication by Erich Gimpel in the illustrated journal  
the "Muenchner Illustrierte:"<sup>1</sup>

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Operation Pelikan.

"The sensitive spot in the 480 miles of the Panama Canal, which links the Atlantic with the Pacific Ocean, is the weir in the middle of the dam embankment (shown in red circle). It was against this point that Operation Pelican, for the preparation of which Erich Gimpel was responsible, was directed. The dam holds  
I. Appendix 55.

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back the masses of water carried by the Rio Chagres into the manmade Gatun lake, through which leads the navigable channel of the Panama Canal. Three locks, each approximately 1 000 feet long, serve to raise the water level from sea level at the Atlantic coast to the altitude in the section between the Atlantic and the higher manmade lake. With each ship moving through the lock system roughly 30 million gallons (104 million liters) of water escape from the lake to the ocean. Gimpel's plan of action was based on the difference of altitude between Lake Gatun and the Atlantic Ocean: A bombing and destruction of the weir would necessarily result in the draining of the lake. It would take two years for the Rio Chagres to refill the lake--two years during which the Panama Canal would remain impassable for ships, and thus two years during which the only sea route connecting the two oceans would be that around the southern tip of Latin America. Loss of the Panama Canal would have been a terrible blow to the navies of the Western Allies in World War II, the greatest war of materiel of all times.

Another plan to interdict enemy supply and reinforcements through an ocean channel, this time in the eastern theater is that illustrated by the following excerpts from



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155     "Document 7644/42 Chef Genst., Chefische, 17 April 1942," being  
 notes taken at a conference at Hitler's Headquarters on  
 17 April concerning operations by the Fourth Air Fleet:<sup>1</sup>

As part of the preparations for our attack against  
 the Kerch Peninsula (on the Crimean Peninsula), which  
 in all probability will start in early May, The attention  
 of the Fourth Air Fleet will be drawn to the following:

From now until the start of the attack the severest  
 possible action must be taken to disrupt transportation  
 to the Kerch Peninsula. In view of the short time it takes  
 to cover the distance between Novorossiysk and Kerch, it  
 will frequently not be possible to attack in time, and  
 while they are still at sea, ships reported as detected  
 en route. For this reason main emphasis in operations to  
 interdict enemy transportation movements will be on at-  
 tacks directed at the ports of Kerch and Kamish, and on  
 combat action against Novorossiysk and Tuapse.<sup>2</sup>

(1) By the Air Force High Command. It is a well-  
 known fact that the Commander in Chief time and again issued  
 instructions assigning missions of the type under discussion  
 here, for example, mission to attack the Suez Canal and, in  
 the far north of Russia, the White Sea or Stalin Canal. How-  
 ever, no written evidence is available at writing.

1. Karlsruhe Document Collection.
2. Appendixes 45 and 56.

## 2. The Selection of Targets.

### a. Principles to be Observed in the Selection of Tar-

gets. In order to achieve success in operations against canals, the attacks must be directed primarily against manmade structures, and particularly against such targets as lock installations, ship-lifting installations, and dams, insofar as the latter serve to carry the canal at a level higher than the surrounding terrain. Attacks to sink ships could also prove profitable.

### b. What Command Headquarters Selected the Targets?

In view of the relatively small number of points at which a canal system can be interdicted, it was possible for the Supreme Military Command or the Air Force High Command to specify in the mission assignment the targets to be taken under attack. In other cases the selection of targets could be left to the discretion of the headquarters directing the execution of the mission.

### c. Examples of Target Selection in World War II.

Only a few examples in this field are available. Although they are in the negative sense they nevertheless serve to outline the type of targets in question here.

#### Example One.

Order Prohibiting the Interdiction of Canals. Campaign



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in Western Europe, 1940.

From Directive # 5 by the Commander in Chief, Air Force,  
Concerning Preparations for the Western Campaign.

Action to destroy the lock installations of the  
 Albert Canal will be taken only by my orders or in re-  
 sponse to urgent request by Army Group B.

Example Two.

Teletype Message from Headquarters, Commander in Chief,  
Air Force, 25 February 1941.

Attacks of any type are prohibited against

.....

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c. Manmade structures or ships in the canal of  
 Corinth, since it will be of the utmost importance to  
 maintain uninterrupted own ship movements through the  
 canal once it is under our control.

Example Three.

Combat Action against Lock Installations. Excerpt from the  
War Journal of the Commander in Chief, Air Force, 1945.

12 April 1945.

The attack prepared by 200th Air Command against  
 the Antwerp lock installations will not be executed.

3. Critical Review.

a. The Statement and Assignment of Missions. During  
 World War II combat action to intercept traffic on waterways

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158 played only a limited role. The operations of this type carried out by the German Air Force during the war were designed primarily to halt traffic in the Polar Canal in northern Russia, which was used by the Russians during the summer months for the transportation of part of the military supplies received from the Western Allies.

The Suez Canal came under attack four times in the 1 May to 7 June 1941 period without any really serious consequences.

Mining operations in the Volga River were carried out only occasionally and then with inadequate means.

b. Target Selection. Nothing important can be said here on this subject.

A new method of warfare applied during World War II was that of mine-laying in waterways, the object being to sink ships in the canal thus mined and thus close it to traffic.

### C. Road Routes.

#### 1. The Mission as the Basis in the Selection of Targets.

a. Principles to be Observed in the Statement and Assignment of Missions. On this subject Air Field Manual L. Dv. 16 contains the following passages:  
In Paragraph 177.

As motorized transportation increases, road networks gain increasing importance for the movement of troops.



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If the intention is to interdict troop movements on road routes, the same considerations apply as in the case of rail routes.

The results achieved will at no time be as effective as those achieved in the case of rail interdiction. The possibilities to reroute traffic are far greater. Catastrophic effects, such as those which a train derailment might achieve, are impossible on roads.

The results will be more serious in regions with few roads and in mountainous terrain than in level country

In Paragraph 162.

Combat action to interdict enemy rail and road routes becomes a matter of decisive importance during strategic assemblies or regrouping movements.

b. What Command Headquarters Stated and Assigned the Mission? As a rule requests for road interdiction operations came from the Army High Command to the Air Force High Command, since the necessity to destroy roads was always connected with movements of the hostile ground forces. However, requests for this type of air action could also come from a field Army as part of the air support mission. On this subject Air Field Manual L. Dv. 16 contains the following passages:

160 In Paragraph 162.

Attacks against the traffic networks of the enemy  
..... must be carried out in very close cooperation with  
the Army.

c. Examples of Mission Statement and Assignment in  
World War II.

From Directive # 5, Commander in Chief, Air Force, Concern-  
ing Preparations for the Western Campaign. (Pursuant to a re-  
quest by the Army High Command).

To prevent\*the movements of Anglo-French army for-  
ces into Belgium, combat action is essential against  
..... and road routes in northern France and Belgium.  
The attacks will be directed primarily against troops  
and truck columns en route.....

Preparations for the attacks against ..... and  
road routes in Belgium will be made by the air fleets  
in agreement with the army groups. Bridges will be  
destroyed only in agreement and with the approval of  
the army groups.

The II Air Corps, under Brigadier General (General-  
major) Loerzer, will delay the approach of enemy forces  
..... and  
from France by means of attacks directed at the/roads  
to and across the Franco-Belgian frontiers on which  
movements are detected.

\* The German text here reads "Zur Versorgung....." which  
would mean "for the supply of.....", which is obviously  
a typographical error. Translator



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2. The Selection of Targets.

a. Principles to be Observed in the Selection of Targets. On this subject Air Field Manual L. Dv. 16 contains the following passages:

In Paragraph 156 (which applies equally to rail and road routes).

In contrast, valuable results can always be obtained, if forces are available for the purpose, through the preventive destruction of particularly important and large manmade structures, which will take a long time to restore to operability (river bridges, etc....).<sup>1</sup>

In Paragraph 172.

Interdiction of the railroad system through the destruction of manmade structures at which a number of routes converge (river bridges, mountain passes) is particularly effective.<sup>2</sup>

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b. What Command Headquarters selected the Targets?

As a rule, the targets were selected by the commander of the units responsible for execution of the mission. In exceptional cases higher headquarters made the selection.

c. Examples of Target Selection in World War II.

Attacks against Bridges in 1945. (From the War Journal of the Air Force High Command).

1. Appendixes 57-59.      2. Appendix 60.

200

161 12 February 1945.

The use of flying missiles (Fliegende Kerper) by the 200th Bomber Wing against the Vistula River bridges is authorized by him (the Reich Marshal).

162 15 March 1945.

Reich Minister Speer (who in the past had favored execution of the Mistel composite aircraft operation) now propounds the following opinion to Hitler: "If the Russians stage a major offensive directed westward across the Vistula River, Operation Eisenhammer\* should be postponed if at all possible and the Mistel composite aircraft already held available for the purpose should be committed against the enemy-held Oder River bridges and possibly also against the Vistula River bridges, in order to prevent major Russian breakthrough." Hitler agrees.

11 April 1945.

With the opening of the Russian offensive, all out and sudden action with all available forces will start immediately against the enemy-held Oder River bridges. For this purpose the 30th Bomber Wing will be reinforced by the assignment of 20 Ju-88-S-3 aircraft or Ju-188 aircraft from the 1st Group of the 66th Bomber Wing.

12 April 1945.

Anticipating the Russian offensive east of Berlin

\* See page 200a.



200a

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\* Eisenhammer. Code name for an operation involving a sudden concentrated attack against the most important elements of the Russian armament industries and electricity supply sources. The attack was to be carried out by Mistel composite aircraft, namely a fighter plane mounted on top of an unmanned bomber plane loaded with explosives. Close to the target, the fighter pilot set the course for the attack run and then released the bomber in the direction of the target. (Note by Translator).

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The Sixth Air Fleet and Tactical Force Helbig are instructed to so dispose their forces that they can go into sudden all-out action against the Oder River bridges.

When participation by Air Force Command Northeast commences Tactical Force Helbig, responsible for direction of operations against the bridges in the eastern and western (Elbe River) segments, will pass under command by Air Force Command Southeast, and will attach a liaison officer to headquarters of the Sixth Air Fleet who will receive all requests for missions against the bridges within the zone of the Sixth Air Fleet.

14 April 1945.

1st Group, 66th Bomber Wing assigned under Tactical Force Helbig to operate against the Oder and Elbe River bridges.

15 April 1945.

In view of the failure of the attack by Mistel composite aircraft against the enemy-held Oder River bridges on the night of 14-15 April, the Chief of the Air Force General Staff has ordered that the 38 composite aircraft still operable are to be committed against other targets. The subject is under study.



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3. Critical Review.

a. The Statement and Assignment of Missions. Whereas in the early stages of the war attacks against road targets had frequently still been carried out specifically as road demolition attacks, emphasis shifted later to attacks against marching troops and vehicle columns on roads.<sup>1</sup> This possibility had been provided for in Air Field Manual L. Dv. 16, Paragraph 145, as follows:

However, if these fixed targets are to be attacked while in use by mobile enemy forces (this applies to railroads, canals, highways, port installations and merchant vessels) the element of uncertainty now involved will necessitate special measures for reconnaissance and combat operations in the execution of the attack in order to inflict losses on the mobile enemy forces concurrently with the destruction of the fixed installations.

Where large sectors were involved it was only in exceptional circumstances, as was the case with the Oder River, that efforts were made to interdict the road system by destroying manmade structures.

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b. Target Selection. Whereas the German Air Force

in the early stages of the war also attacked small bridges

1. A method which proved highly effective in operations to prevent troop movements was to attack the entrances and exits to built-up areas, so that the debris from the destroyed houses would cover the roads.

164 and even road intersections or narrow roadways as interdiction targets, it became customary later in the war to select only large bridges for interdiction attacks.

## II. WARFARE AGAINST THE ENEMY SOURCES OF MILITARY POWER.

On this subject Air Field Manual L. Dv. 16 contains the following passages.

### II Paragraph 22.

Warfare against the sources of military power have an incisive impact on the course of an entire war. Such action strikes at the very roots of the enemy's will to fight and resist. In many cases, however, its effects materialize slowly, and a danger inherent in this type of air warfare is that its results might come too late to influence the operations of the Army or the Navy. Usually this type of air warfare will tie down large forces for a considerable time.

Unless the nature of the targets is such that operations against them are likely to have an early impact on the course of the war, warfare against the military sources of power and/or to interrupt the flow of military supplies and reinforcements to the front are advisable

1. See Appendix 61, which shows the targets selected for the 1940 campaign in Western Europe.



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only if the current surface operations on the ground or/ and at sea are intended solely to create conditions for a decisive operation; when an important phase of operations has ended; or if destruction of the enemy resources appears the only means by which a decision of the war can be brought about.

In Paragraph 21.

Warfare against the sources of military power thus might also be necessary during periods of coordinated action with ground and naval forces.

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In such case, however, the targets for attack must be so selected that the air operations will affect the operations of the ground and naval forces at the proper time.

Paragraph 143.

Warfare against the sources of military power is directed against all installations and measures of the enemy which serve to strengthen and increase the enemy military forces in combat.

Under this heading are included:

Manufacturing and other producing facilities

Food supplies and food supply installations

Import traffic and facilities

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Electric power stations

Rail and other traffic channels

Military replacement centers

Government and other administrative centers

The following orders are offered to exemplify operations  
in warfare against the sources of enemy military power:

Supreme Commander of Military Forces

Berlin,

OKW Nr. 48/39 g. K. WFA/L (I)

10 May 1939<sup>1</sup>

Copies 7

2d Copy.

Command Personnel Only

Officer Courier Only

Top Secret

Subject: Instructions Concerning Uniform Preparations by  
the Military Forces in 1939/40 against the Even-  
tuality of War (OKW Nr. 37/39 g.K. Chfs. WFA/  
L/I, 11 April 1939.

The attached "Principles for Economic Warfare and  
Protection of the Own Economy" are forwarded as Part VI  
of the "Directive." The Commanders in Chief of the three  
military branches are requested to ~~submit~~ report by 1 August  
1939 the measures taken pursuant to these principles.

S/ Adolf Hitler.

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Top Secret

Anlage VI zu OKW Nr 37/39 g.K.

7 Copies

WFA/L Ia Chfs.

2d Copy

1. Karlsruhe Document Collection.



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## VI

Directives for Warfare against the Enemy Economy (Economic Warfare) and for Protection of the German Economy.

## I. INTRODUCTION.

1. The principal participants in warfare against the enemy economy are the Navy and the Air Force. Their action is supported by sabotage activities (Counterintelligence Division of the Supreme Military Command). The mission might develop for the Army to increase the territories available to Germany by occupying enemy territories which are of especial importance for the German economy.

combat

Preparations for/measures of economic warfare are a responsibility of the Plenipotentiary General for Economy

The Supreme Military Command (Joint Operations Office\*in collaboration with the Economics Staff) is responsible for the uniform direction of all measures taken against the enemy economy. The same applies for all measures taken to protect the German economy.

2. In Parts II and III of the present directives principles have been stated for the conduct of economic warfare and defense in the event of Operations Grenzsicherung and Weiss. From these evolve the preparations

\* Wehrmacht Fuehrungs Stab, later designated Wehrmacht Fuehrungsstab (Joint Operations Staff) commonly referred to as the Wehrmacht Operations Staff.

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to be made by the three branches of the military establishment and by the Plenipotentiary General for Economy.

3. The essential condition for a uniform conduct of economic warfare is a uniform concept in the appraisal of the enemy economy.

For this purpose the following conditions apply:

a. The Supreme Military Command (Economics Staff) is responsible for the compilation of a consolidated "military-economic" appraisal of the countries concerned on the basis of data procured by itself, by the Foreign Branch/Counterintelligence Section, of the Supreme Military Command, and by the three branches of the military establishment. Close collaboration is essential for this purpose with the three branches of the military establishment, with the Foreign Office, with the Plenipotentiary General for Economy, and with all other agencies involved.

b. In collaboration with the Supreme Military Command (Economics Staff and Foreign Branch/Intelligence Section), the Army, Navy, and Air Force will secure data for their operations and will furnish to the Supreme Military Command (Economics Staff) contributions for use in the consolidated appraisal of the military economy of enemy countries.

II. Instructions for Operation Grenzschließung (Frontier Security).



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1. Attacks against the Enemy Economy.a. General. Operational Study Grenzsicherung

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specifies only the protective measures to be taken at the beginning of a war. Over and beyond this it is essential for the Navy and Air Force in particular to make preparations for the immediate commencement of economic warfare. Such warfare will be directed primarily against Britain, and secondly against France. Here, Britain and France will be considered as one homogeneous economic unit in all fields in which an interchange of mutual economic support between them appears possible. The important point is not only to strike the original sources of military power but above all bottlenecks in the enemy economy.

In all combat measures care will be exercised not to infringe the territory of neutral countries.

b. The Army. In collaboration with the Supreme Military Command (Economics Staff) the Commander in Chief of the Army will prepare for action designed to harass or destroy enemy economic and supply installations and facilities within firing range of the weapons committed for frontier defense.

In the event of an advance into enemy territory the higher level commands, in agreement with the

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liaison officers attached to their staffs from the Economics Staff will decide which industrial and supply installations are to be spared destruction for later use. Very especial importance attaches to timely measures to salvage supplies of all types in occupied territories. Their salvage will be reported to the Supreme Military Command (Economics Staff).

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c. Navy. Within its scope the Navy will prepare for warfare against British and French merchant shipping. According to the current political situation at any given time during peace and with due regard to the possible constellation of enemy powers, the legal and military aspects of the intended form of warfare on merchant shipping will be examined continuously in collaboration with the Foreign Office and adapted to currently anticipated developments.

The zones in which warfare against merchant shipping will be conducted will be established in discussions between the Navy and Air Force High Commands and reexamined continuously.

d. Air Force. Preparations will be made for offensive operations designed to cripple the enemy sources of food, raw materials, and manufactured supplies and to strike the enemy armament industries.



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In all such planning the aim will be, in cooperation with the Supreme Military Command (Economics Staff) and with the Commander in Chief of the Navy, to consolidate all efforts in concentrated attacks against those sources of economic power the loss of which will have the most telling impact on the entire ~~military~~ economy of the enemy.

In operations against enemy shipping routes it is of particular importance to insure that the targets for attack are selected in very close cooperation with the Navy High Command in order to secure a mutual concentration of effort by both branches of the military establishment.

.....

### III. DIRECTIVES FOR OPERATIONAL STUDY WEISS.

1. It is of importance to seize the Polish industrial installations in the least possible damaged condition. For this reason, such installations will only be attacked if immediately necessary for military reasons.

2. For our military economy a quick occupation of the industrial regions of Polish Upper Silesia and Techen is important.

3. The Navy will take measures to completely prevent all movements of supplies to Poland by sea. In accordance with the current international situation and in

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cooperation with the Foreign Office the form of warfare against merchant shipping to be waged for this purpose will be decided. An important point here is in particular that of how to deal with ships sailing under the flags of neutral nations, and what to do about cargoes consigned to neutral ports but possibly intended for Poland.

4. For the protection of the German economy what has been said under the heading of Operational Study Grenzsicherung essentially applies also here.

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## Directive # 9

Principles Governing the Conduct of Warfare against the  
the Enemy Economy.

1. In the war against the Western Powers Britain is the power supporting the will to fight and is the leading power among our enemies.

The defeat of Britain is the essential condition for final victory.

The most potent measures towards this end are those designed to cripple the British economy by dislocating it



171 it at critical points.

2. Developments in the military situation and in our armament situation could within the foreseeable future create favorable conditions for comprehensive warfare against Britain's economic foundations. Timely arrangements must therefore be made to strike Britain a mortal blow in her economic power through the consolidation of suitable means of combat for attacks against the most important targets.

In accordance with special instructions the non-military means of economic warfare will be applied in action coordinated with the measures taken by the military forces.

3. If our Army (the original German text reads Heeres, which would mean of our army) has succeeded in defeating the Anglo-French operational Army forces and occupying a part of the Continental coastline opposite England, the mission of the Navy and the Air Force of conducting warfare to cripple Britain's economic power will predominate. Cooperation with the S and K Organization will be sought.

4. In such case the following missions, stated in sequence of importance, will develop for the Navy and the the Air Force in the uniform conduct of combat operations:

a. Combat action against the principal British ports of transit in the form of mining operations and measures to blockade the approach routes, and in the form of attacks to destroy the vitally important port installations and coastal locks.

Here, particular significance attaches to the use of mine-laying aircraft to mine ports on the west coast of England, in narrow channels, and in river estuaries.

b. Action to destroy shipping and the naval forces escorting and protecting that shipping.

c. Action to destroy British supplies, oil depots, and foods stored in refrigerated warehouses and grain silos.

d. Action to disrupt British troop and supply transportation to France.

e. Action to destroy industrial installations which are such that their loss would have a decisive impact on the military conduct of warfare. Of particular importance here is the destruction of key factories in the aircraft manufacturing industry and factories manufacturing heavy artillery, antiaircraft guns, ammunition



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and explosives.

5. The most important transit ports of Britain, which handle 95 percent of Britain's foreign trade and can only be inadequately replaced by other ports, are as follows:

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London	}	Important for the import and processing of foods, timber, and oil.
Liverpool		
Manchester		

These 5 (sic) occupy a key position in the peacetime import traffic, handling 58 percent of the entire volume involved.

Newcastle	Swansea	}
Elythe	Cardiff	
Sunderland	Barry	
Hull		

The following could serve as alternate ports, but only to a limited extent and only for the handling of specific commodities:

Grangemouth	Holyhead
Leith	Bristol
Middlesborough	Belfast
Grimsby	Newport
Southampton	Galle
Glasgow	Dundee.

Constant supervision is essential to detect any possible diversions of traffic. Furthermore, it will be important to take measure which will progressively narrow down the outlets for British foreign trade and thereby enforce the diversion of traffic into areas within the

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striking range of our naval and air forces.

French ports will only be selected as targets for attack if their locality or functions bring them into the pattern of action to blockade Britain, or if they should serve as important ports of debarkation for troops.

6. In the case of ports which cannot be effectively mined, merchant shipping will be crippled by closing the port entrances by means of sunken ships, and action to destroy the vitally important port installations.

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It will be of particular importance here to destroy the large lock installations at the following ports:

Leith, Sunderland, Hull, Grimsby, London, Manchester, (ship channel), Liverpool, Cardiff, Swansea, Bristol, and Avonmouth.

On the west coast in particular these lock installations serve to regulate the water level in the ports, so that the transshipment of cargoes in such ports is largely dependent on them.

7. In preparing for the above operations the important point is

a. To constantly reexamine and supplement the data already available concerning British seaports and the installations and handling capacities, and concerning



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the British armament industries and the large supply depots.

b. To accelerate the development of methods by which mine-laying aircraft could also lay anchored mines.

c. To build up a reserve supply of mines to meet the large requirements and adapted in numbers to the operational capabilities of the Navy and the Air Force.

d. To coordinate in timing and area the actual combat action taken by the Navy and the Air Force.

Preparations will be made for the necessary action as soon as possible, and I request the Commanders in Chief of the Navy and of the Air Force to keep me currently informed on their plans and intentions.

I reserve to myself the decision as to when the restrictions are to be cancelled which are still valid for naval and air warfare in accordance with my former directives. The removal of these restrictions will probably coincide with the opening of our large-scale offensive.

S/ Adolf Hitler

S/ v. Trotha, Captain.

The sections which now follow will deal with the subject of warfare against the various categories of targets under the heading of sources of military power, with the exclusion of operations against railroads and other traffic channels,

175 which have been dealt with in Section IV above.

A. WARFARE AGAINST ARMAMENT INDUSTRIES.

1. The Mission as the Basis for the Selection of Targets.

a. Principles to be Observed in the Statement and Assignment of Missions. On this subject Air Field Manual

L. Dv. 16 contains the following passages:

176 In Paragraph 150.

Warfare against the industries producing the means of warfare holds out prospects of decisive success if the enemy has no possibility to replace lost production capabilities by imports or by means of the output from factories located beyond the effective range of attacking aircraft.

When attacking a production complex, the rule is to strike those installations or areas the loss of which would cause the collapse of the entire complex.

In the selection of targets it is important to consider whether a successful attack would affect the enemy fighting forces soon or only gradually. If the intention is to achieve an immediate impact on military operations, the targets must be selected accordingly.

In Paragraph 151.

In planning the type of attack to be staged, the



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determining factor will be whether action is intended against a number of separate targets distributed over a wide area or against an interdependent industrial region.

In Paragraph 152.

As a rule, operations against a large interdependent industrial area will take up considerable time, even if the individual attacks are directed exclusively against the vital points within the target area.

Circumstances might be such that the desired result can be achieved more easily through destruction of the installations supplying the area with electricity, gas, and water.

In Paragraph 153.

In some cases good results can be obtained through the destruction of those rail and waterway routes which are important for the outward transportation of the finished products from the area. However, quick results are usually difficult to obtain by this method because of the /the densely meshed nature of industrial rail systems and the consequent numerous possibilities to reroute traffic.

b. What Command Headquarters Stated and Assigned the Mission? As a rule the mission was stated and assigned

176 by the highest levels of command, the Supreme Military Com-  
mand, or the Commander in Chief of the Air Force, since  
177 these commands alone had the necessary overall insight into  
what was required.

c. Examples of Mission Assignment in World War II.

(1) Orders by the Supreme Military Command.

Example One.

From Hitler Directive # 1, 31 August 1939.

For the conduct of warfare against Britain, pre-  
parations will be made for air warfare to disrupt .....  
(seaborne import traffic), the armament industries,  
1  
(troop movements to France).

Example Two.

From Hitler Directive # 21, Barbarossa, 18 December 1940: Cam-  
paign against Russia.

In order to be able to concentrate all forces in  
action against the enemy air forces and in action direct-  
ly supporting the Army, the enemy armament industry will  
not be taken under attack during our major operations  
[on the ground]. Such attacks, primarily against the  
Ural region, can only be taken into consideration after  
conclusion of our mobile operations.

Example Three.

From Hitler Directive # 45, 23 July 1942.

1. Appendixes 62-64.



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Owing to the vital importance of the mineral oil output of the Caucasus region for the continued conduct of the war, no air attacks will be directed against the oil producing sites and bulk storage tank depots in that region, or against the transshipment ports in the Black Sea, unless the situation in Army operations render such attacks inescapably necessary. In order to speedily deny the enemy any possibility of receiving oil supplies from the Caucasus, however, particular importance attaches to an early interdiction of the rail routes and oil pipelines used for the purpose, and to action serving to interrupt<sup>1</sup> sea route in the Caspian Sea.

Example

(2) Orders By the Commander in Chief, Air Force.

Example One (in the negative sense).<sup>2</sup>

Operational Study Weiss, 10 May 1939, Annex 6.

Instructions for Warfare against the Enemy Economy (Economic Warfare).

The important point is to seize the Polish industrial installations if at all possible in an undamaged condition. Therefore, they will only be attacked if a direct military necessity for such action exists.

1. Appendix 65.

2. Karlsruhe Document Collection.

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Example Two. (Instructions for the Strategic Assembly and Combat Operations of the Air Force): From Operational Study 1939.

Instructions for Operations against Poland, 1 May 1939.

- a. Combat action to establish German air supremacy.
- b. Action in support of the Army.
- c. Preparations will be made for a concentrated bomber attack, with all forces committed against Weiss [Poland] participating, directed at Warsaw (military installations and armament factories).

n More detailed instructions on this subject separately.

The Commander in Chief of the Air Force reserves to himself the decision concerning execution of this attack.

Unless unavoidable in the execution of the foregoing missions, attacks will be avoided against R. K. L. installations and against any installations which might be important for the German conduct of warfare, except with prior approval from the Commander in Chief, Air Force.

The same applies to attacks against the center of Warsaw City (Government and administrative offices).

Example Three.

From Directive # 4 by the Commander in Chief, Air Force, 23 September 1939, for the Second and Third Air Fleets.<sup>2</sup>

- a. 1. Since operations in the east are drawing to a close..
1. Karlsruhe Document Collection. 2. Ibid..



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a close.....

B. Air Attacks.

The missions of the Third Air Fleet (after authorization of attacks against targets in French territories)  
.....

A serious disruption of the French fuel supplies is not to be expected in view of the forces available for the necessary action against those supplies. In contrast, the Third Air Fleet will receive a list of industrial targets, which are to be attacked, even if only by small units, whenever conditions are favorable.

Example Four.

From Order by the Commander in Chief, Air Force, 26 November 1943.<sup>1</sup>

For the purpose of systematic operations against the Russian armament industries I intend consolidating under IV Air Corps Headquarters the bulk of all heavy bomber units committed in the eastern theater, which will be reinforced by special units with special capabilities of precision bombing.

The mission of these units will be to carry out destructive attacks against the Russian armament industries, in order to deprive the Russian masses of large numbers of tanks, guns, and aircraft before these can even reach

1. Karlsruhe Document Collection.

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the front, and through such action more effectively relieve the strain on our hard-pressed Army of the East than would be possible through air support operations on the field of battle alone.<sup>1</sup>

## 2. The Selection of Targets.

a. Principles to Be Observed in the Selection of Targets. Air Field Manual L. Dv. 16 contains the following passages on this subject:

### In Paragraph 148.

In order to conserve forces it is therefore advisable to refrain from attacking the entire complex of targets constituting the sources of military power and to restrict the attack to the currently most vitally important elements.

These elements must be so selected that their destruction will result in the total collapse of the entire power source area of which they are a part.

In order to insure an economical use of available forces, total destruction will not be attempted if the desired results can be achieved through disrupting, harassing, or neutralizing attacks.

In Paragraph 150, Section 2, which again expressly confirms

1. Appendix 66 shows the results achieved in an attack of this kind in June 1943.



181 the above concept.

When attacking a production complex the rule is to strike those installations or areas the loss of which would cause the collapse of the entire complex.\*

b. What Command Headquarters selected the Targets.

As a rule the highest levels of command, namely, the Supreme Military Command or the Air Force High Command, which assigned the mission, at the same time specified the individual targets for attack and their priority sequence.

c. Examples of Targets Selection in World War II.

(Excerpt from "Luftoperationen im Nordseeraum 1939")<sup>1</sup>

In November 1939 plans of the German Air Force High Command provided for an attack against the British explosives factory at Billingham, which produces 90 percent of Britains output in explosives.

3. Critical Review of German Target Selection. It has been mentioned previously in this study, in the section on "Cooperation with the Army," that the bulk of German air power had been committed in operations of support for the Army, pursuant to orders from the Supreme Military Command.

1. Karlsruhe Document Collection, G V 1.

\*. The reader is referred here to what has been said in Section III on the subject of target selection.

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Contrary to the principles so clearly stated in Air Field Manual L. Dv. 16, attacks against the enemy sources of military power, which would have held out far better prospects of successful action, were launched only occasionally and then only in inadequate strength.

It was only on November 9, 1943 that the German Air Force High Command clearly stated<sup>1</sup>

that it could contribute more towards victory in the eastern theater if it would do its utmost to combat "the roots of the Russian aggressive strength, the Russian armament industries" instead of serving as artillery and using its bombers to place bombs in front of the infantry.

It was considered possible, through a careful selection of key point targets, to cripple up 50-80 percent of the Soviet manufacturing capacity, which, according to current estimates by German counterintelligence, definitely would have amounted to 3 500 tanks and 301 first line aircraft monthly.

Speaking in retrospective, the Commander in Chief of the Air Force stated in the study concerned that

With the opening of our summer offensive in 1942 our air force was again fully committed in a mission of direct support for the Army, and so it has remained

<sup>1</sup> Karlsruhe Document Collection: Lw. FueSt, K.S.F.II, "Kampf gegen die russische Ruestungsindustrie."